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MOJAVE PIPELINE
NORTHWARD EXPANSION PROJECT
DRAFT
ENVIRONMENTAL IMPACT REPORT / ENVIRONMENTAL IMPACT STATEMENT

VOLUME II
MAPS

Federal Energy Regulatory Commission
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California State Lands Commission
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February 1995

FERC/EIS-0086D
FERC Docket
Nos. CP93-258-000 et al.

EIR 646
State Clearinghouse
No. 94032040

INTRODUCTION

This map volume was compiled to accompany the Mojave Pipeline Northward Expansion Project Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) prepared jointly by the Federal Energy Regulatory Commission (FERC) and the California State Lands Commission (SLC) in February 1995. The map volume was developed for use as a visual aid to understanding information presented in section 2 (project description) and section 4 (affected environment) of the EIR/EIS. The maps or "sheets" depict the entire proposed route. A table of contents is included to assist users in identifying sheet numbers for specific locations of interest along the route. A removable, laminated guide to the map symbols and abbreviations is provided in the binder's front pocket.

The information contained herein is not intended to be used for an intensive field review and should only be used as a visual representation of the proposed route and its affected surroundings. The maps are based on U.S. Geological Survey 1:100,000 series topographic maps except where no 1:100,000 maps are available, in which case portions of 1:250,000 maps were enlarged.

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Draft Environmental Impact Report/Environmental Impact Statement

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Guide to Map Symbols and Abbreviations

Water Resources

Cn – Canal
IS – Intermittent stream or ditch
PS – Perennial stream
(GW – Areas of potential shallow groundwater contamination)

Geology

Only those conditions which constitute geologic hazards are included.

Flt – Fault
Lsp – Landslide potential
Sub – Subsidence
Lqp – Liquefaction potential
Eqs – Earthquake shaking
Dex – Difficult excavation

Soils

Only those soil conditions which could potentially affect construction or restoration are included.

EH/ST – Erosion Hazard/Steep slope
EH/HW – Erosion Hazard/High Wind
LF – Low fertility (includes saline and sodic soils)
SS – Shallow soils

Vegetative Communities

Included in this category are vegetative communities within the ROW where land ownership is not railroad or roadway ROW. For railroad or roadway ROWs, adjacent vegetative communities are shown.

Agr – Agricultural, croplands, orchards, and vineyards
Dis – Disturbed or ruderal
Fal – Fallow
Urb – Urban (includes industrial)
Mcbs – Mojave creosote bush scrub communities
Mws – Mojave wash scrub communities
Nng – Non-native grassland communities
Chs – Chenopod scrub communities
Rip – Riparian
Rw/Fwm – Riparian woodland or Freshwater marsh communities
Alk – Alkali lowland communities
Fhw – Foothill woodland communities
Cb/Sm – Coastal brackish and Salt marsh communities
Vern – Vernal pools

Potential Threatened & Endangered Species Habitats

This category depicts the general area of suitable habitat and location of specific sightings.
** symbolizes a confirmed sighting.*

SJkf – San Joaquin kit fox
SJas – San Joaquin antelope squirrel
bnll – blunt-nosed leopard lizard
dtor – desert tortoise
Mgsq – Mojave ground squirrel
Frkr – Fresno kangaroo rat
gikr – giant kangaroo rat
Tkr – Tipton kangaroo rat
snkr – Short-nosed kangaroo rat
Shawk – Swainson's hawk
golde – Golden eagle
dccor – double-crested cormorant
Cats – California tiger salamander
Crlf – California red-legged frog
vpfs – vernal pool fairy shrimp
lhfs – longhorn fairy shrimp
Alws – Alameda whipsnake
velb – valley elderberry longhorn beetle
SFgs – San Francisco garter snake
bowl – burrowing owl
Ssp – Suisun song sparrow
LCt – LeConte's thrasher
ybc – yellow-breasted chat
tcb – tri-colored blackbird
pondt – NW/SW pond turtle
KeBl – Kern Brook lamprey
Hows – Hoover's wooly star
rlrk – recurved larkspur
hrts – heartscale
brts – brittlescale
vlss – valley spearscale
lff – large-flowered fiddleneck
ssbc – spiny-sepaled button celery
SCtp – Santa Cruz tarplant
pbbb – palmate-bracted bird's beak
hbb – hispid bird's beak
hall – hairless allocarya
Baca – Bakersfield cactus
ADep – Antioch Dunes evening primrose
CCwf – Contra Costa wallflower

Land Use

This category depicts designated land use in the permanent ROW. Land use in areas adjacent to the temporary construction ROW is not shown.

Agr – Agricultural, including vineyards, orchards, pasture, range land, and other open land
Res – Residential
Ind/Com – Industrial or commercial
other – Recreation, open space, river crossings, or parks

residences within 50 feet of proposed pipeline route | park/ trail/ preserve | golf course | spectator sport facility | military facility | school

Land Ownership

Rd/ROW – Roadway right-of-way
RR/ROW – Railroad right-of-way
Fed – Federally owned
Cal – State owned
Other – County, city, or privately owned
BLM – Bureau of Land Management
USDA – U. S. Department of Agriculture

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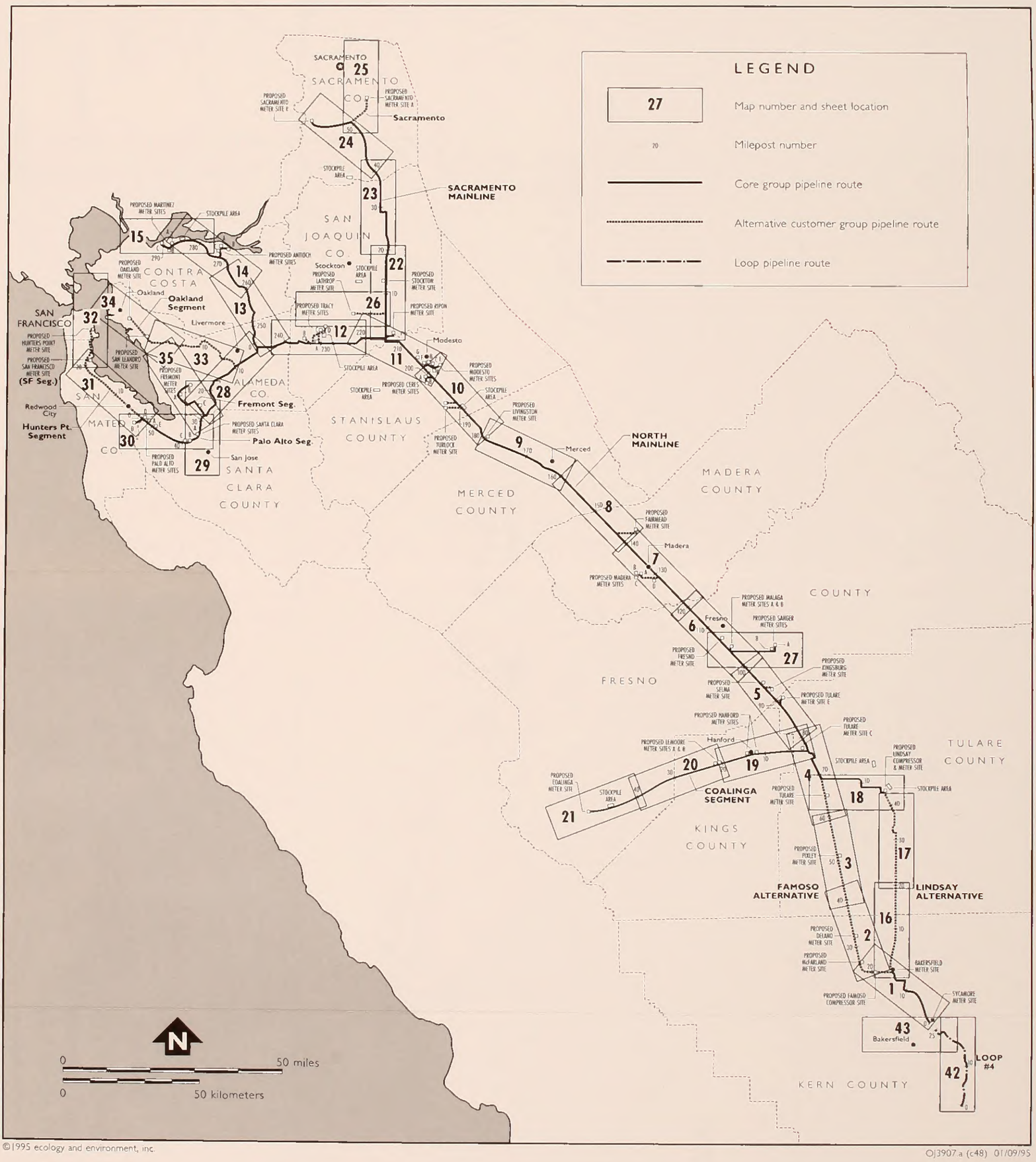

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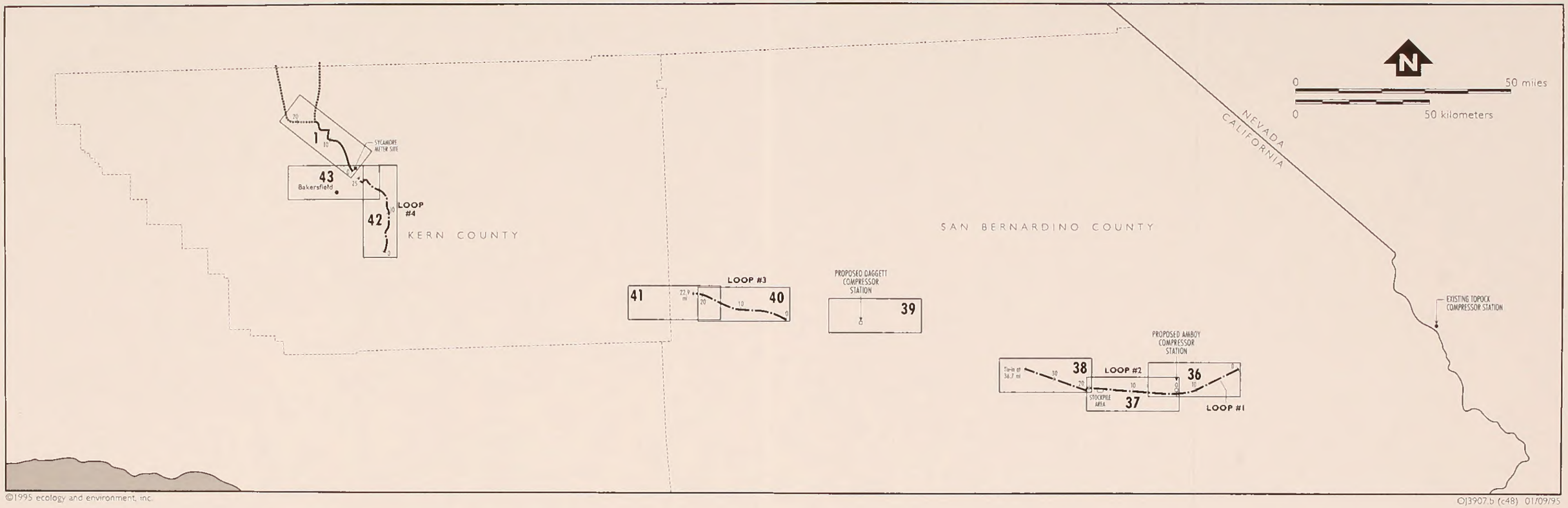
Figure 1

Overview of Proposed Route, Alternatives and Index to the Map Volume

Mojave Pipeline Northward Expansion



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LEGEND

43	Map number and sheet location
20	Milepost number
———	Core group pipeline route
·····	Alternative customer group pipeline route
—·—·—	Loop pipeline route

Figure 2

Overview of Proposed Pipeline Loop Sections and Index to the Map Volume

Mojave Pipeline Northward Expansion

NORTH MAINLINE ROUTE

Water Resources: Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; GW; Intermittent stream

Geology: Premier Fault; New Hope Fault; Earthquake shaking along entire length of North Mainline and Famoso Alternative

Soils: SS/LF; LF; SS/LF; Sodic soils; Sodic soils; Erosion hazard / steep slope; Eh/st; Eh/st; Eh/st; Erosion hazard / steep slope

Vegetative Communities: Agr; Dis; Agricultural; Nonnative grassland; Chenopod scrub; Nonnative grassland

Potential Threatened & Endangered Species Habitats: San Joaquin kit fox; Blunt-nosed leopard lizard; Alameda whipsnake

Land Use: Agricultural

Land Ownership: Other; County road; Other; Cal; Other; Cal; Other; Cal; Other

MP 20 — Famoso Compressor Site (for Customer Group 1 only) — unnamed creek — State Route 65 — Little Creek — MP 15 — unnamed creek — unnamed creek — unnamed creek — Poso Creek — MP 10 — MP 5 — MP 0

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline & Famoso Alternative

LINDSAY ALTERNATIVE (see Map 16)

McFarland Meter Site (end of McFarland Segment, Case 2)

McFARLAND SEGMENT (Case 2 only)

FAMOSO ALTERNATIVE

Famoso Compressor Site (Customer Group 1 only)

Bakersfield Meter Site B

Bakersfield Meter Site A

Kern Front Meter Site

Sycamore Meter Site

Hollis; Famoso; Calico; Poso Kern Airport; Poso; Round Mtn; Kern Front Oil Field; Midway Oil Field; Mount Poso

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 1 of 43

Map Scale 1:100,000

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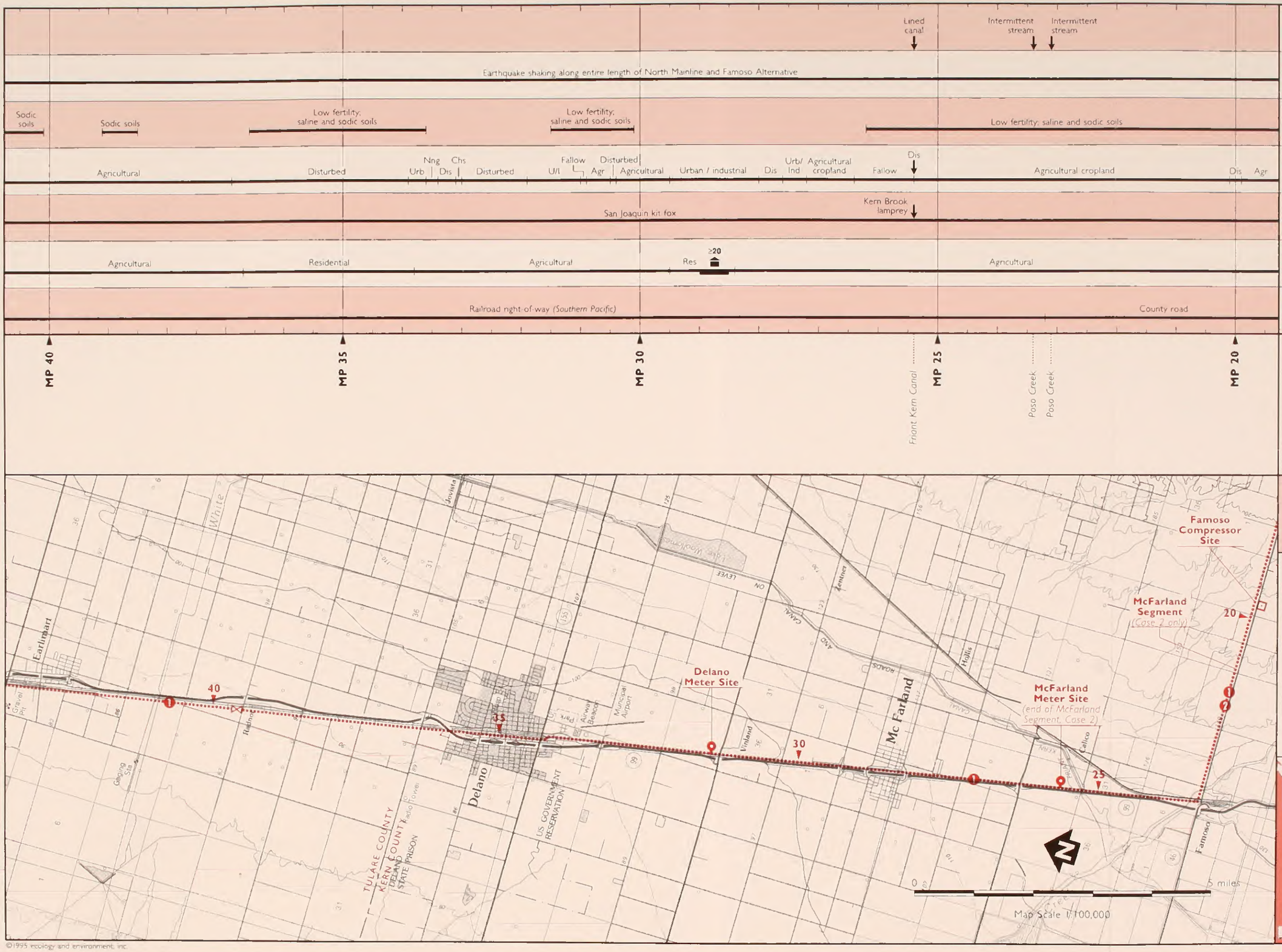

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Water Resources

Intermittent stream

Intermittent stream

Intermittent stream

Intermittent stream

Geology

Earthquake shaking along entire length of North Mainline and Famoso Alternative

Soils

Sodic soils

Sodic soils

Sodic soils

Sodic soils

Sodic soils

Vegetative Communities

Agr Rip Agricultural Dis U/I Fallow Nng Agricultural Dis Agr Dis Agr U/I Agricultural U/I Fallow Agricultural U/I Agr Dis Agr Fallow Nng Fallow Fallow Agr Agr U/I Fallow Agricultural Disturbed Fallow Agr

Potential Threatened & Endangered Species Habitats

Swainson's hawk

San Joaquin kit fox

Tipton kangaroo rat

Land Use

Agricultural Residential Agricultural 1 Residential Agricultural 1 Residential 1 1 Agricultural 1

Land Ownership

Railroad right-of-way *(Southern Pacific)*

MP 60 MP 55 MP 50 MP 45 MP 40

North Branch Tule River *South Branch Tule River* *Deer Creek* *White River*

Mojave Pipeline Company

Proposed Northward Expansion

Famoso Alternative

Legend

- Proposed pipeline (core)
- Alternatives *(customer group 1 or 2)*
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Pixley Meter Site

Tipton

Earlimart

Pixley

Map Area

0 5 miles

Map Scale 1:100,000

Map 3 of 43

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Water Resources: Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; IS; Intermittent stream

Geology: Earthquake shaking along entire length of North Mainline

Soils: SS/LF; LF; SS/LF; Sodic soils; Sodic soils; Sodic soils; Sodic soils; Sodic soils; LF; saline soils

Vegetative Communities: Nng; Agricultural; Nng Agr; U/I; Disturbed; Agr; Dis; Agricultural; Fallow; U/I; Agr; Urban/Industrial; Agricultural cropland; Urban/ Industrial; Agricultural; Rip; Agr

Potential Threatened & Endangered Species Habitats: Valley elderberry longhorn beetle; San Joaquin kit fox; Swainson's hawk

Land Use: Agricultural; Residential; Agricultural; Residential; 1; Agricultural; 3

Land Ownership: Railroad right-of-way *(Southern Pacific)*; Rd/ ROW; Other; Railroad right-of-way *(Southern Pacific)*

Mill Creek Ditch; **MP 80**; *Mill Creek Ditch*; **MP 75**; State Route 198; State Route 99; *Mill Creek*; *Evans Ditch*; *Packwood Creek*; **MP 70**; **MP 65**; *Tulare Canal*; *Bates Slough*; *Elk Bayou*; **MP 60**

Mojave Pipeline Company

Proposed Northward Expansion

LINDSAY SEGMENT *(see Map 18)*

Tulare Meter Site C

Tulare Meter Site

COALINGA SEGMENT *(see Map 19)*

TULARE COUNTY / KINGS COUNTY

Goshen; Tulare; Visalia Muni Airport; Mooney's Grove Park; Stadium; Merfield Field; Bayou; Elk; Oxford; Paige; Midvalley; Tagus; Airway Beach; Alpaugh Irrigation District; Rockford; Evans; Packwood Creek; Mill Creek; St. Johns

80; 75; 70; 65; 60

0; 5 miles

Map Scale 1:100,000

Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives *(customer group 1 or 2)*
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 4 of 43

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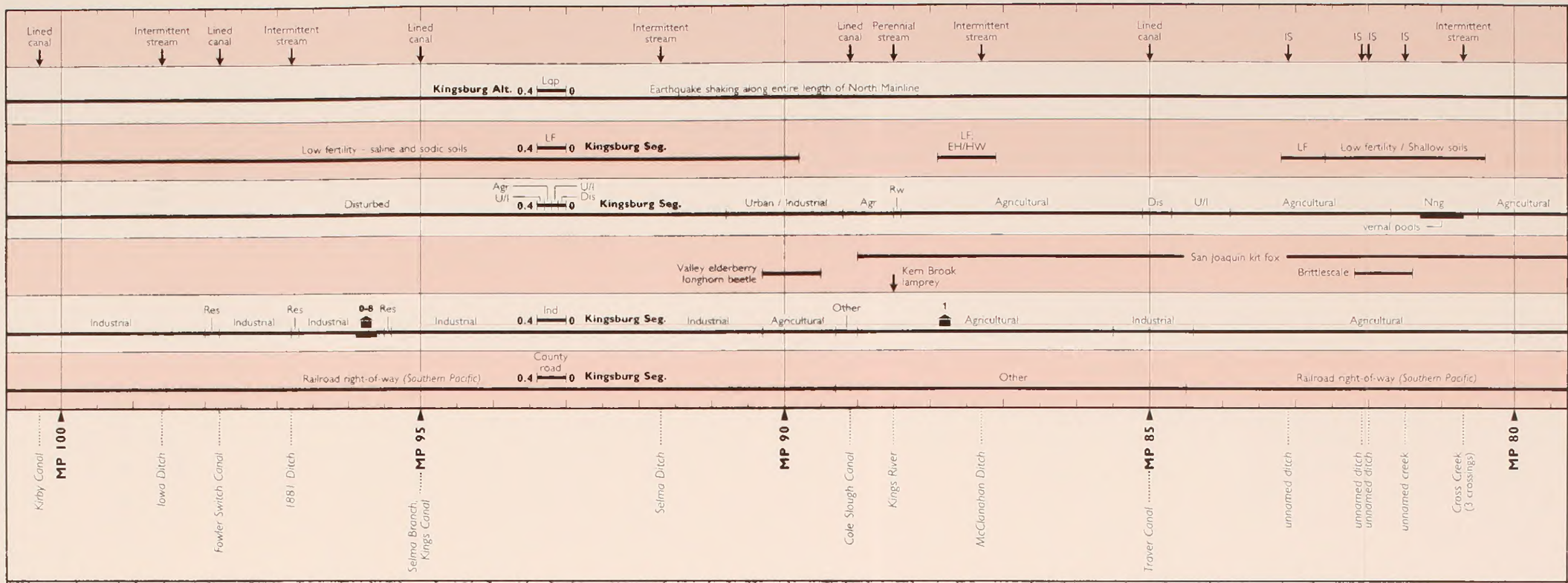

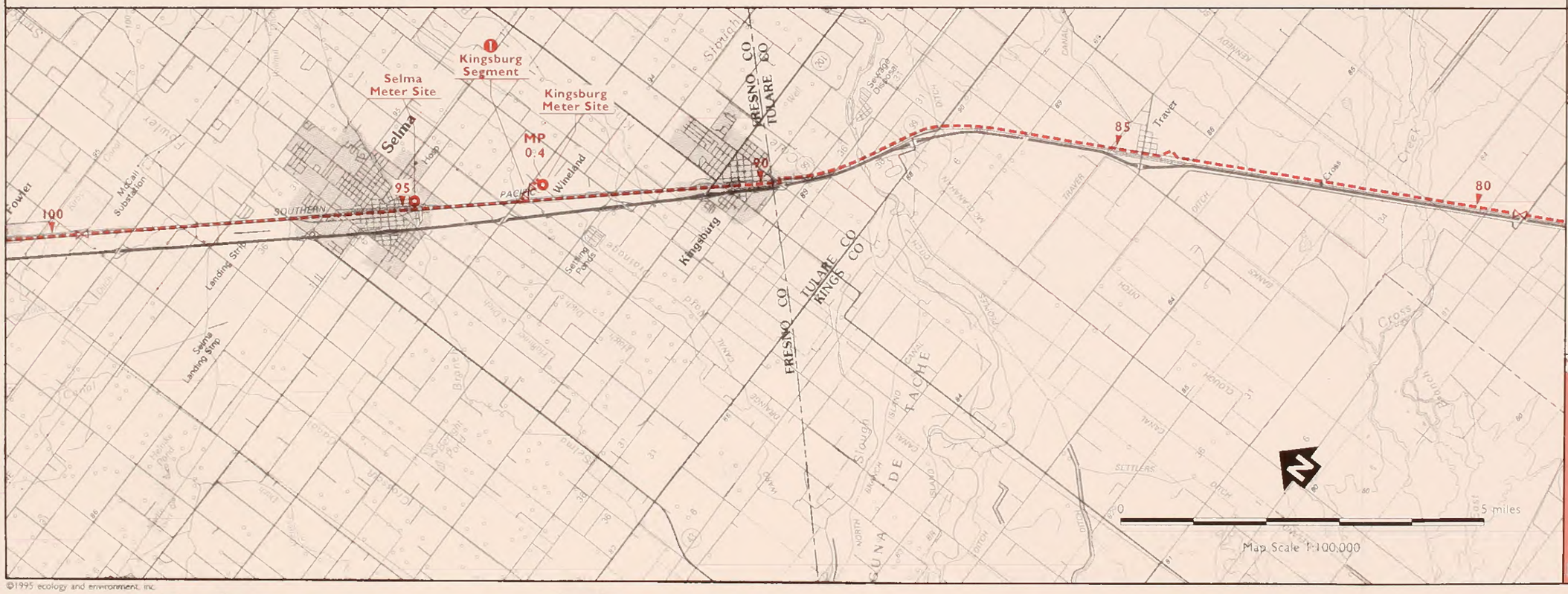

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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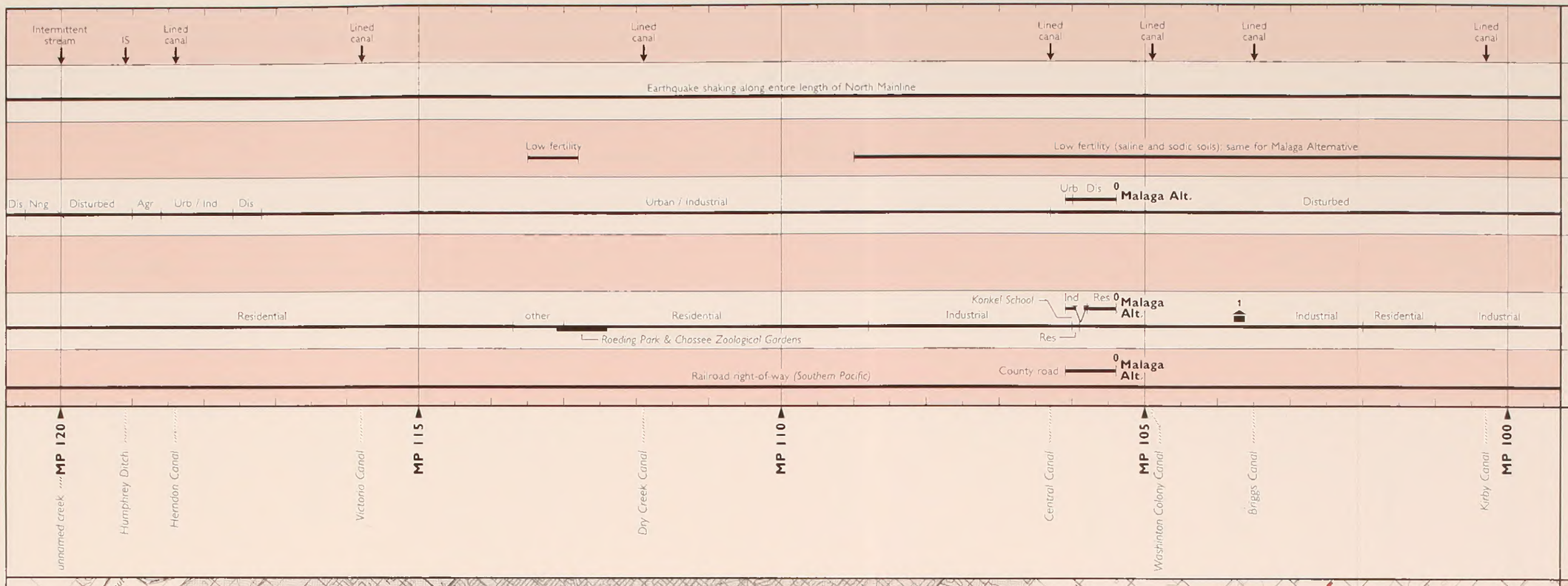
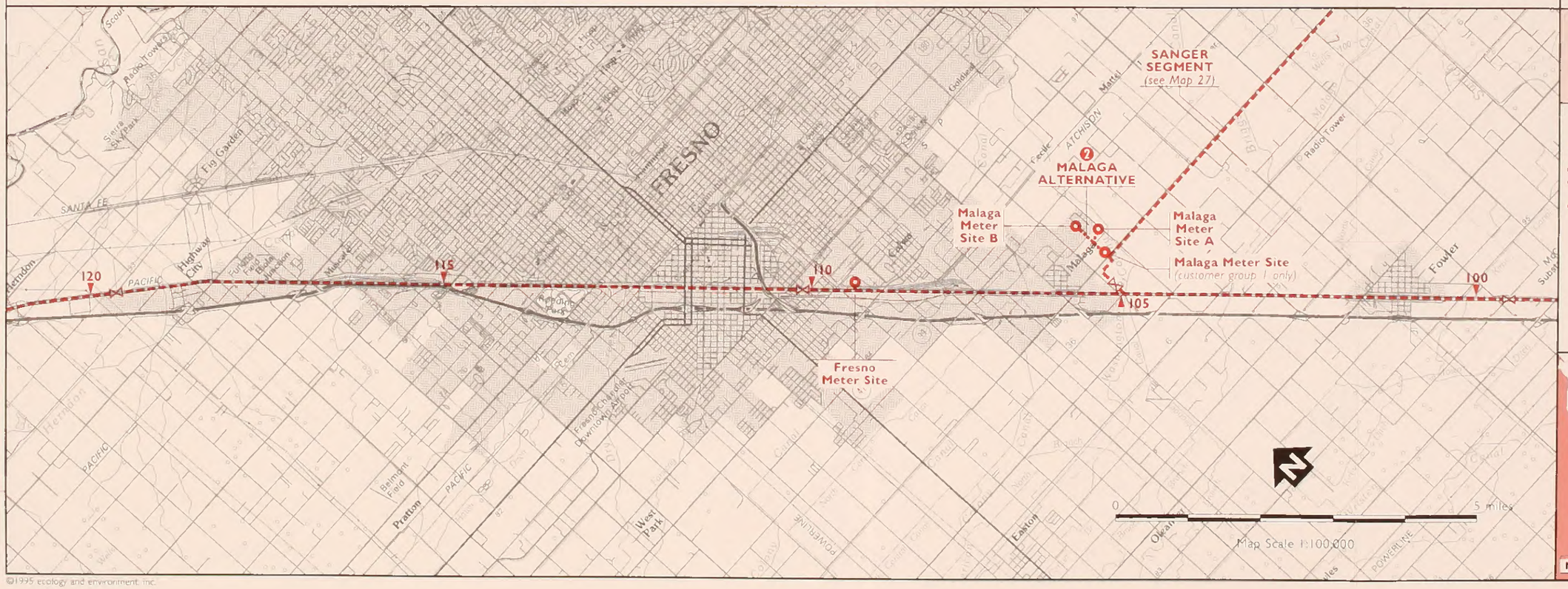


Mojave Pipeline Company

Proposed Northward Expansion



Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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Water Resources: Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Lined canal; IS; IS; Perennial stream; Intermittent stream

Geology: Earthquake shaking along entire length of North Mainline

Soils: High erosion hazard; low fertility; LF; high erosion hazard; Low fertility

Vegetative Communities: Dis; Rip; Nng; Vernal pools; Agr; U/I; Dis; RW; U/I; Nng; Dis; Vern; Nng; Dis; Rip; Urban / industrial; Agr; Dis; Agr; Dis; Agr; Dis; Rip; Agricultural; Disturbed; Agr; U/I; Dis; Agr; U/I; Agr; Dis; Agr; Disturbed; Nng; Dis; Rain-filled depression

Potential Threatened & Endangered Species Habitats (* confirmed at this location): Spiny-sepaled button celery*; Vernal pool fairy shrimp*; Vernal pool fairy shrimp*; Scattered non-natural ponding areas – suitable for vernal pool-associated crustaceans; Yellow-breasted chat; Scattered non-natural ponding areas – suitable for vernal pool-associated crustaceans

Land Use: Agricultural; 5-10; Residential; Agricultural; Proposed San Joaquin River Parkway; Res; Agr; Ind; Agr; Open; Residential; 18-35

Land Ownership: Railroad right-of-way (Southern Pacific); Rd/ROW; Railroad right-of-way (Southern Pacific)

MP 140 — Berenda Creek — Dry Creek — Schmidt Creek — MP 135 — Fresno River — MP 130 — Cottonwood Creek — Siphon and Canal — MP 125 — unnamed creek — unnamed creek — San Joaquin River — unnamed creek — MP 120

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Madera Meter Site

Madera Meter Site A

Madera Meter Site B

Madera Meter Site C

Madera Meter Site D

MADERA ALTERNATIVE (see Map 7a)

Map Scale 1:100,000

0 5 miles

Map Area

Map 7 of 43

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Intermittent stream; Intermittent stream; Intermittent stream; IS	Water Resources
Earthquake shaking along entire length of Madera Alternative	Geology
	Soils
Disturbed; Agriculture; Rural res; Agriculture; Urb; Agriculture; U/I; Agr; Dis; Riparian	Vegetative Communities
	Potential Threatened & Endangered Species Habitats
1; Agricultural; 1	Land Use
Other; Rd/ROW	Land Ownership

MP 6.2 — unnamed lateral — MP 5 — Hugh Ditch — unnamed lateral — Cottonwood Creek — Highway 99 — MP 0

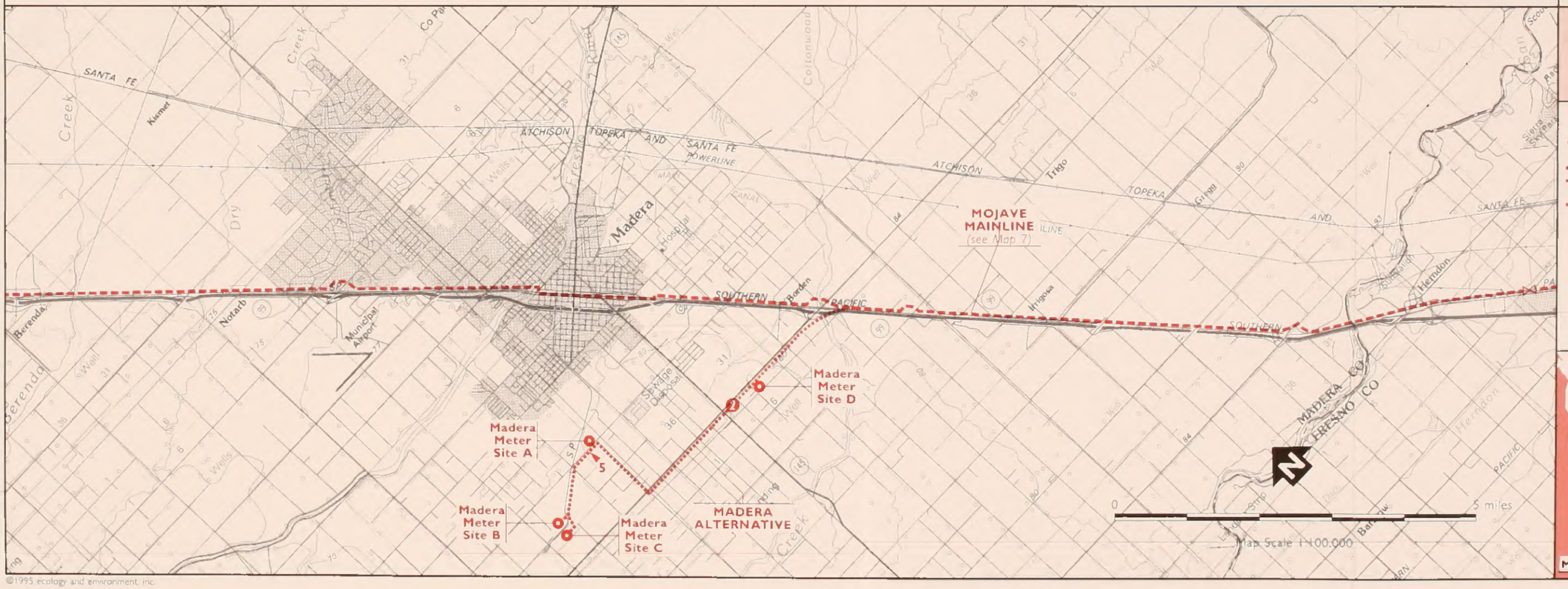
Mojave Pipeline Company

Proposed Northward Expansion

Madera Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost



Map 7a of 43

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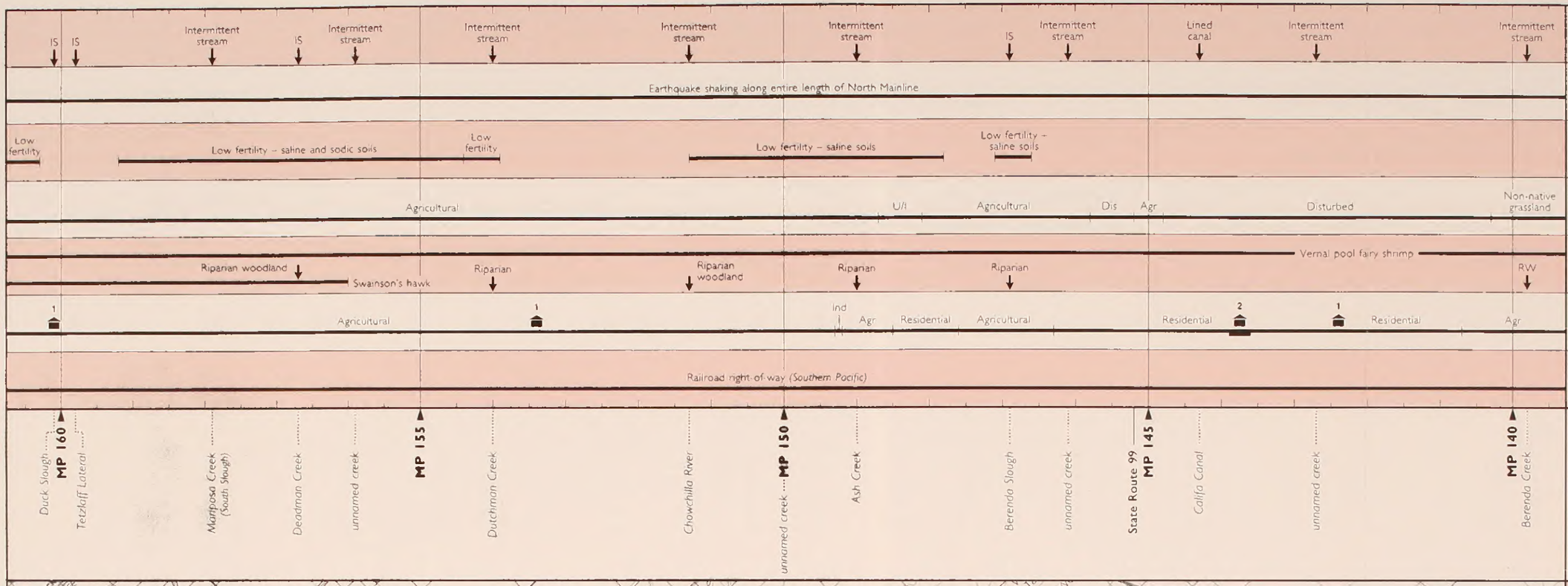

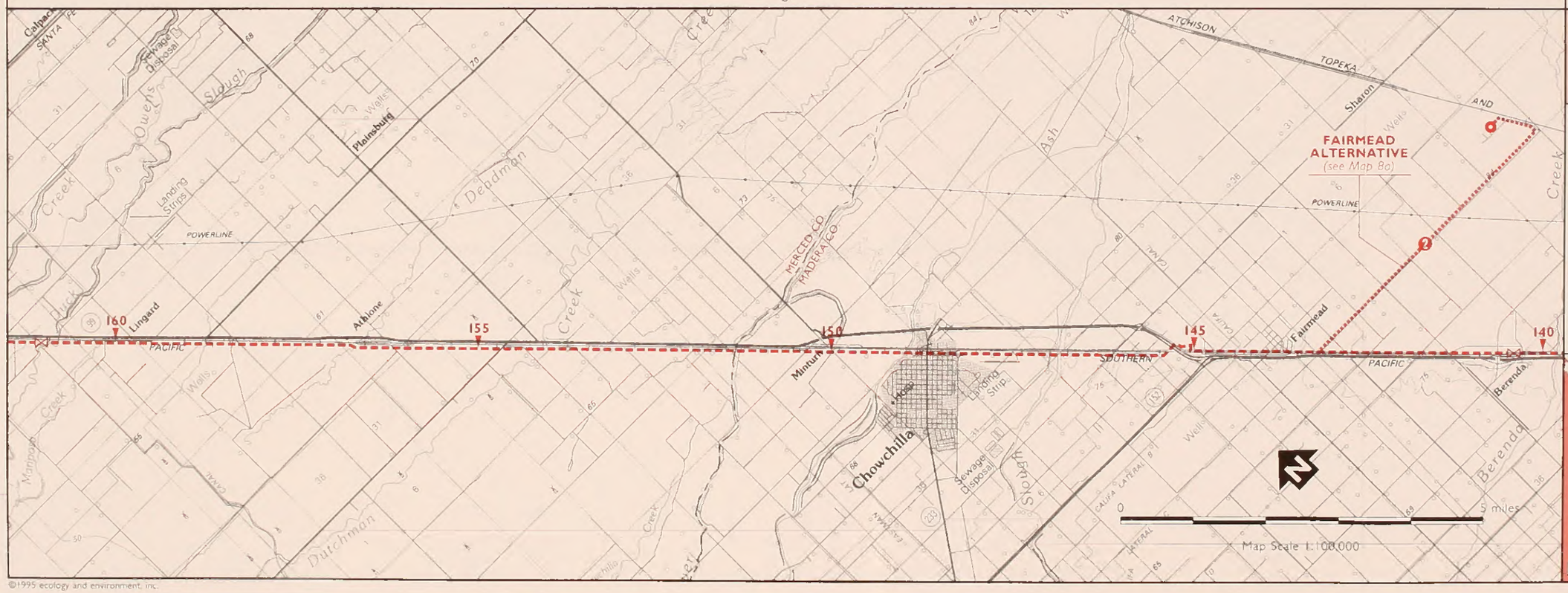

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 8 of 43

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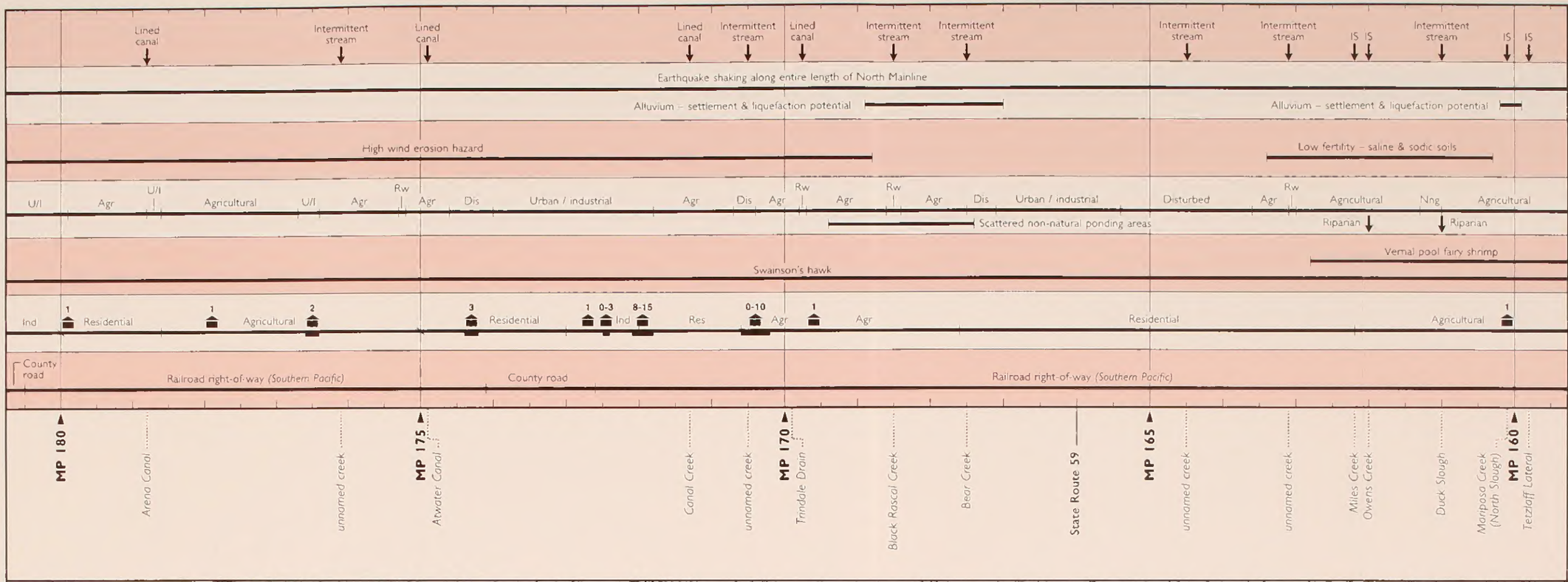

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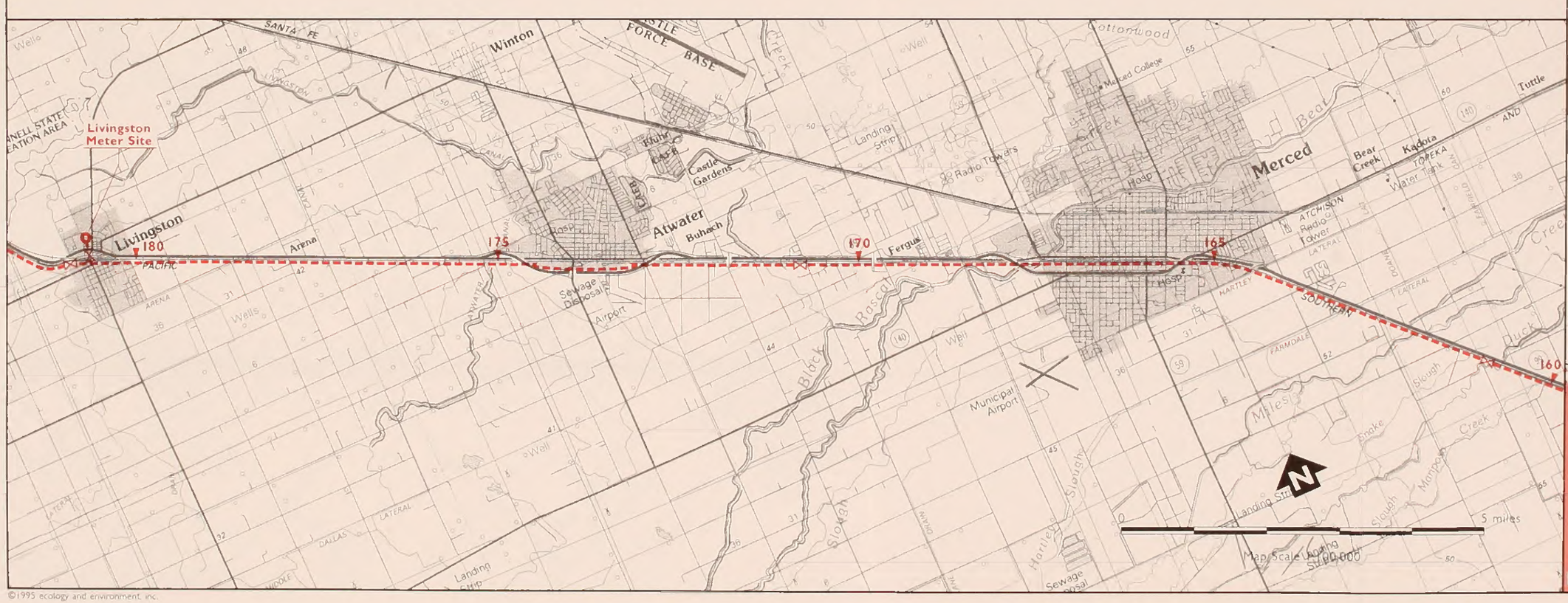
Proposed Northward Expansion



Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 9 of 43

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Water Resources: Lined canal; Intermittent stream; Lined canal; Lined canal; Lined canal; Perennial river; Intermittent stream

Geology: Earthquake shaking along entire length of North Mainline

Soils: High wind erosion hazard; low to very low fertility (sodic soils); Saline and sodic soils; EH/HW; low – mod. fertility; Low fertility; sodic soils; High wind erosion hazard; saline & sodic soils; LF; High wind erosion hazard

Vegetative Communities: Urban / industrial; Agr; Dis; Agr; Agr; Dis; Dis; Agricultural; Dis; Agricultural; Urban / industrial; Agr; U/I; Agricultural; U/I; Disturbed; Rip; Agr; U/I; Nng; Dis; Agr; U/I; Agr; U/I; Agr

Potential Threatened & Endangered Species Habitats: Swainson's hawk; Yellow-breasted chat; Valley elderberry longhorn beetle; Kern Brook lamprey

Land Use: 1; 1; 13-≥25; Res; 1; Residential; Agr; 1; forgrounds; 5-10; Residential; Agricultural; 1; Residential; 0-3; Industrial; 1; Res

Land Ownership: Railroad right-of-way *(Southern Pacific)*; County road; RR/ROW *(SP)*

MP 200 — Ceres Main Canal — MP 195 — unnamed creek — MP 190 — Lateral No. 5 — Lateral No. 6 — MP 185 — Highline Canal — State Route 99 — Merced River — unnamed creek — MP 180

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Modesto Segment and Meter Sites *(see Map 11a)*

Turlock Meter Site C *(serving alternative customer group 1 only)*

Livingston Meter Site

Turlock A Segment *(see Map 10a)*

Proposed Stockpile Area

Ceres Meter Sites

Ceres Segment *(see Map 10a)*

Turlock Segment *(see Map 10a)*

Map Scale 1:100,000

0 5 miles

Map Area

Map 10 of 43

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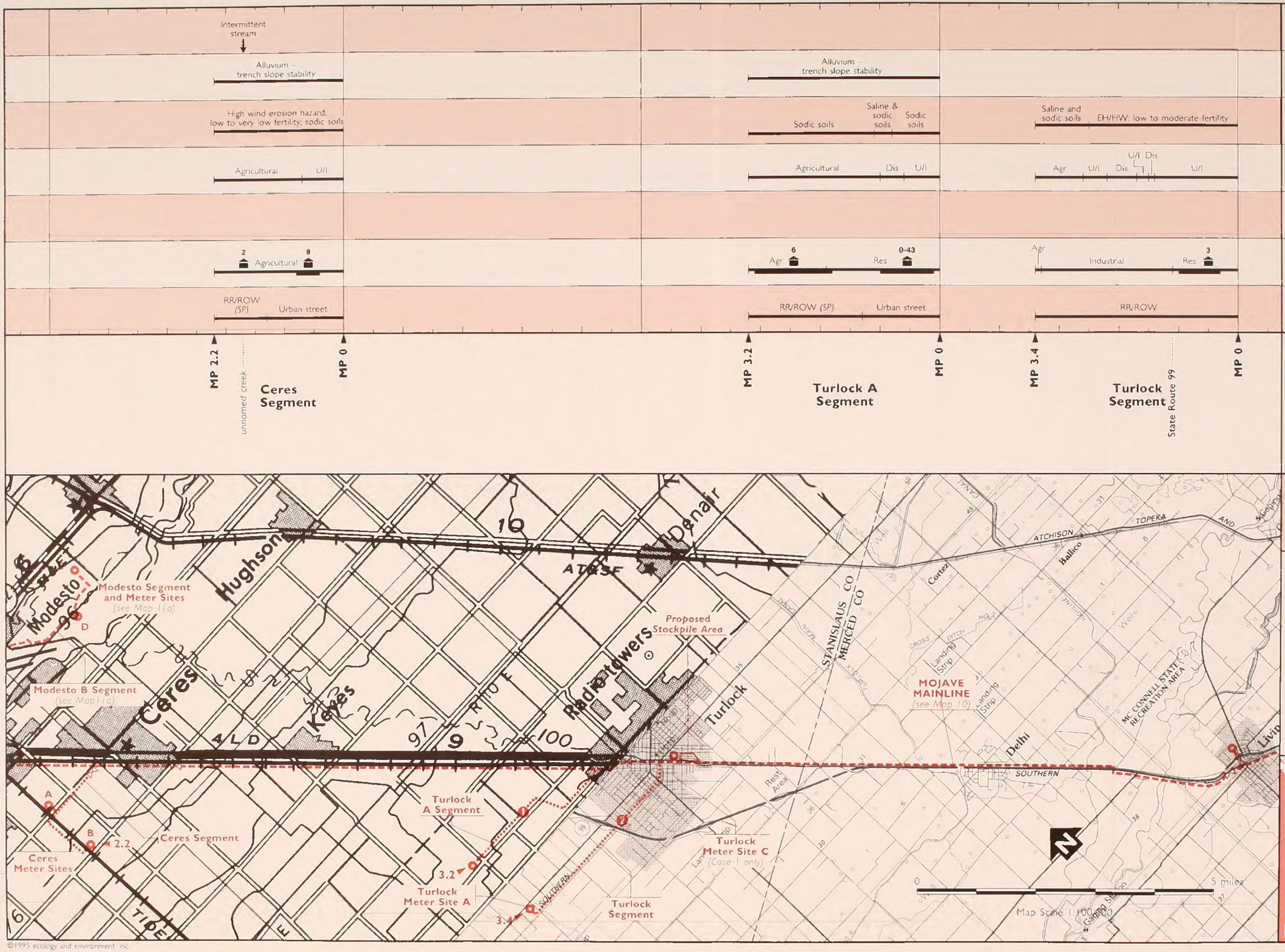

Mojave Pipeline Company

Proposed Northward Expansion

Ceres, Turlock, and Turlock A Segments

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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Water Resources: Intermittent stream; Intermittent stream; Perennial river; Lined canal; Lined canal; Lined canal; Buried aqueduct; Lined canal; Lined canal; Perennial river; Lined canal; Intermittent stream

Geology

Soils: 2.0 EH/HW: low fertility 0 Ripon Segment; High wind erosion hazard; low fertility; Low to moderate fertility; sodic soils; High wind erosion hazard; low to very low fertility; sodic soils; Low fertility; High wind erosion hazard; low to very low fertility; sodic soils

Vegetative Communities: 2.0 Ripon Segment Agricultural 0; Rw; Agricultural; Dis; U/I; Agricultural; Riparian; Urban / industrial

Potential Threatened & Endangered Species Habitats (* confirmed at this location): Yellow-breasted chat; Southwestern/Northwestern pond turtle*; Potential Swainson's hawk nesting habitat; Valley elderberry longhorn beetle; Kern Brook lamprey

Land Use: Agricultural; 2.0 Ind 1 Res Open 0 Ripon Segment; 1 Open; 7; Agricultural; 0-55; Residential; 6-10; Open; 0-5; Residential; 1; 1; 13-≥25

Land Ownership: County road; Other; Ripon Segment; Other; County road; Railroad right-of-way (Southern Pacific)

MP 220; unnamed creek; unnamed creek; Stanislaus River; MP 215; Lateral No. 8; State Route 219; Lateral No. 6; MP 210; Lateral No. 7; Hetch-Hetchy Aqueduct; Lateral No. 3; MP 205; Lateral No. 4; Tuolumne River; State Route 99; Lateral No. 1; unnamed creek; MP 200

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline

Sacramento Mainline (see Map 22); Ripon Meter Site; Ripon Segment; Salida; Modesto Segment & Meter Sites (see Map 11a); Modesto Meter Site G; MODESTO; Ceres Meter Site A; Ceres Segment (see Map 10a); Ceres Meter Site B; CASWELL MEMORIAL STATE PARK; SAN JOAQUIN CO; STANISLAUS CO; South County Regional Park; San Joaquin River Club; 220; 215; 210; 205; 200; 225

Legend
- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 11 of 43

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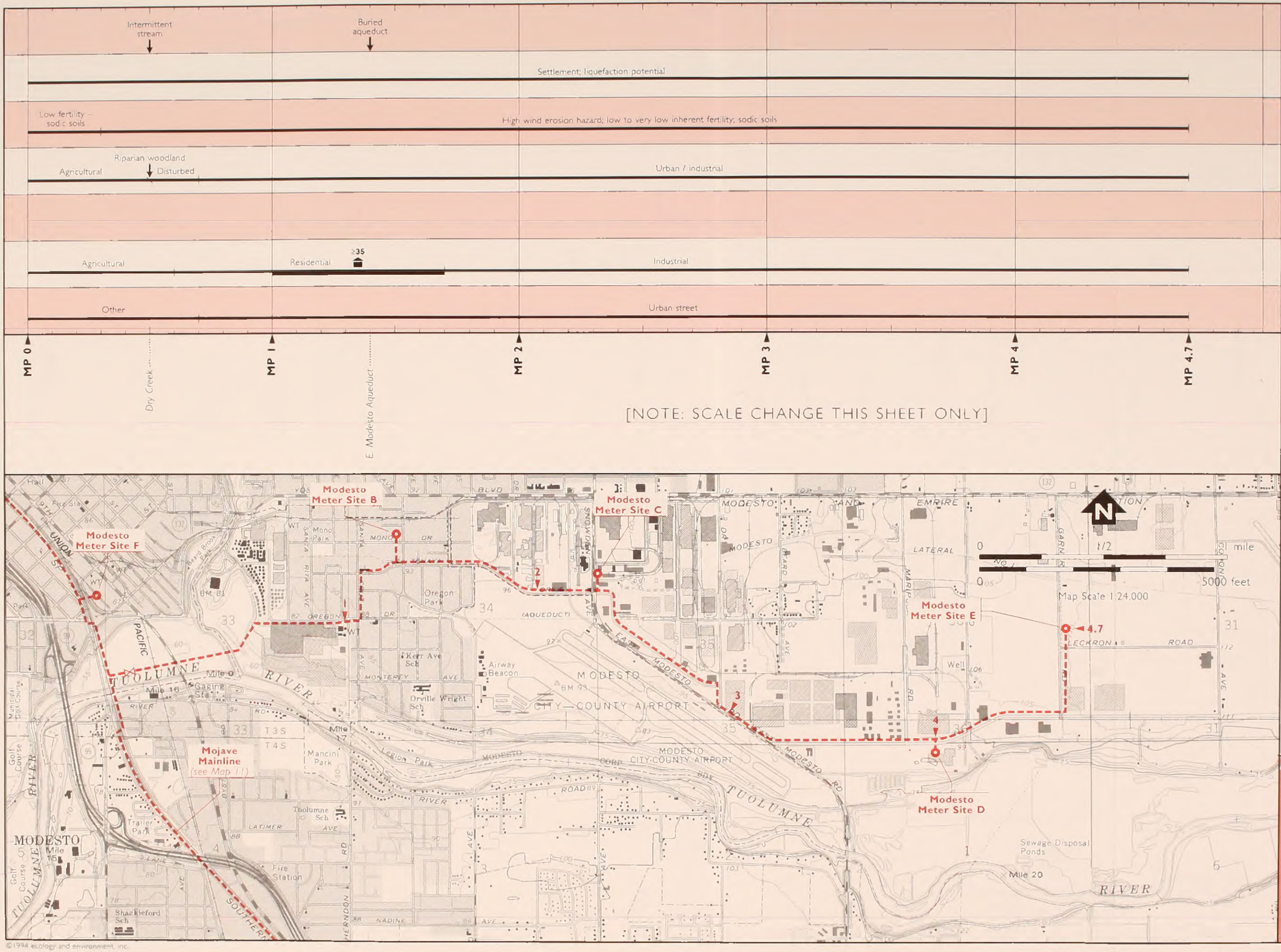

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Water Resources: Intermittent stream; IS; IS; Intermittent stream; Lined canal; Lined canal; Lined canal; Lined canal; Perennial river; Intermittent stream

Geology: Midway Fault; Potentially difficult excavation; slope stability; Alluvium – settlement; liquefaction potential; Vernalis Fault; Sand & gravel resource; Tracy Pit (stone resource); Earthquake shaking; landslide potential; potentially difficult excavation

Soils: ST; EH; LF; ST; EH; LF; Steep slopes; mod. to high erosion hazard; low to mod. fertility; shallow to v. shallow soils; Low fertility; saline & sodic soils; EH/HW; LF

Vegetative Communities: Non-native grassland; Agricultural; Disturbed; U/I; Agr; U/I; Agricultural; U/I; Agricultural; Riparian; U/I; Agricultural

Potential Threatened & Endangered Species Habitats (* confirmed at this location): Cal. tiger salamander*; Golden eagle*; San Joaquin kit fox; Burrowing owl*; Burrowing owl*; Swainson's hawk; California red-legged frog*

Land Use: Agricultural; 1; 0-15; 2; 0-5; 1; Residential; 8; 1; Agricultural; 1

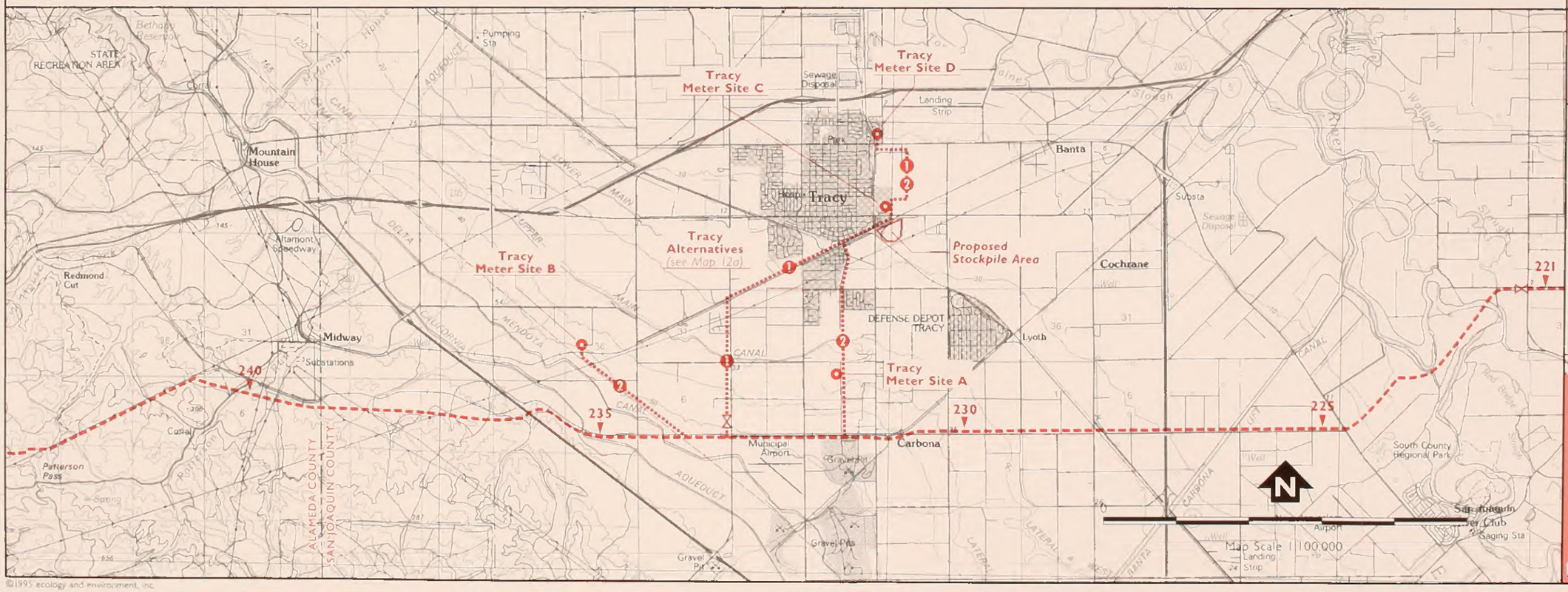
Land Ownership: Other; Railroad right-of-way (Western Pacific); County road; Other; County road

Patterson Creek; MP 240; unnamed creek; unnamed creek; Interstate 580; unnamed creek; California Aqueduct; MP 235; Delta Mendota Canal; MP 230; State Route 33; Interstate 5; Banta Carbona Lift Canal; MP 225; unnamed lateral; San Joaquin River; Walthall Slough; MP 220

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline



Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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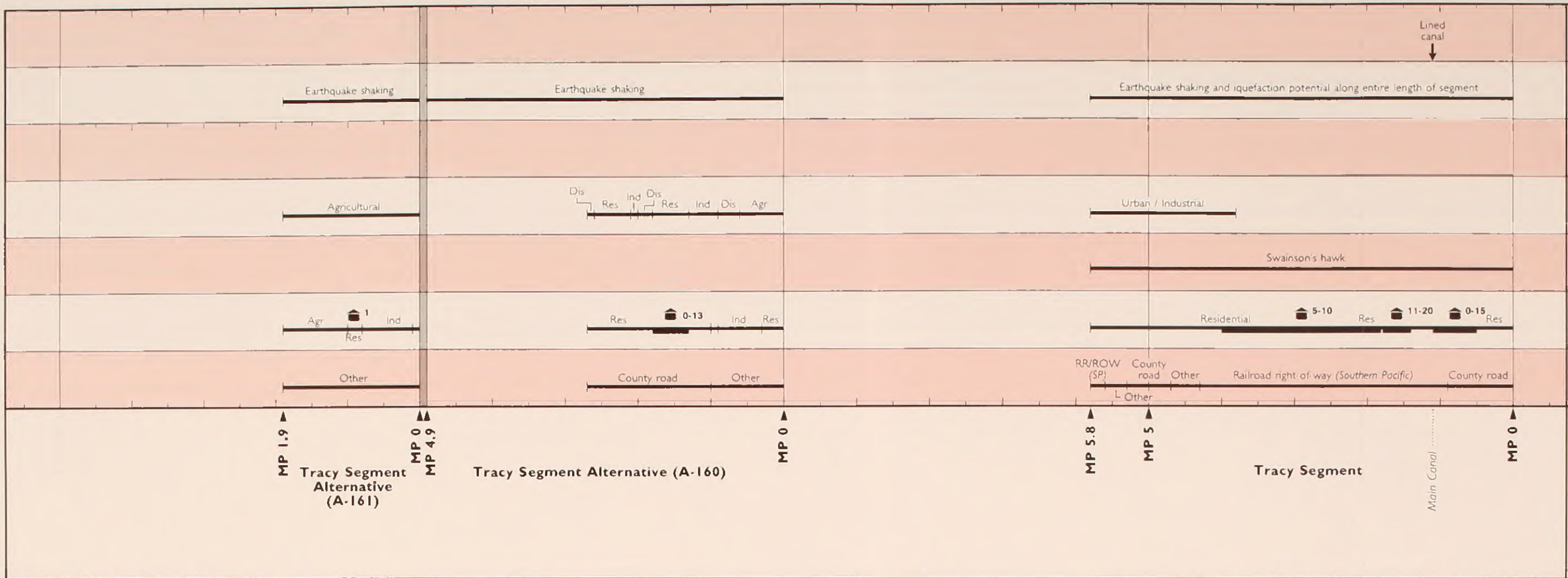
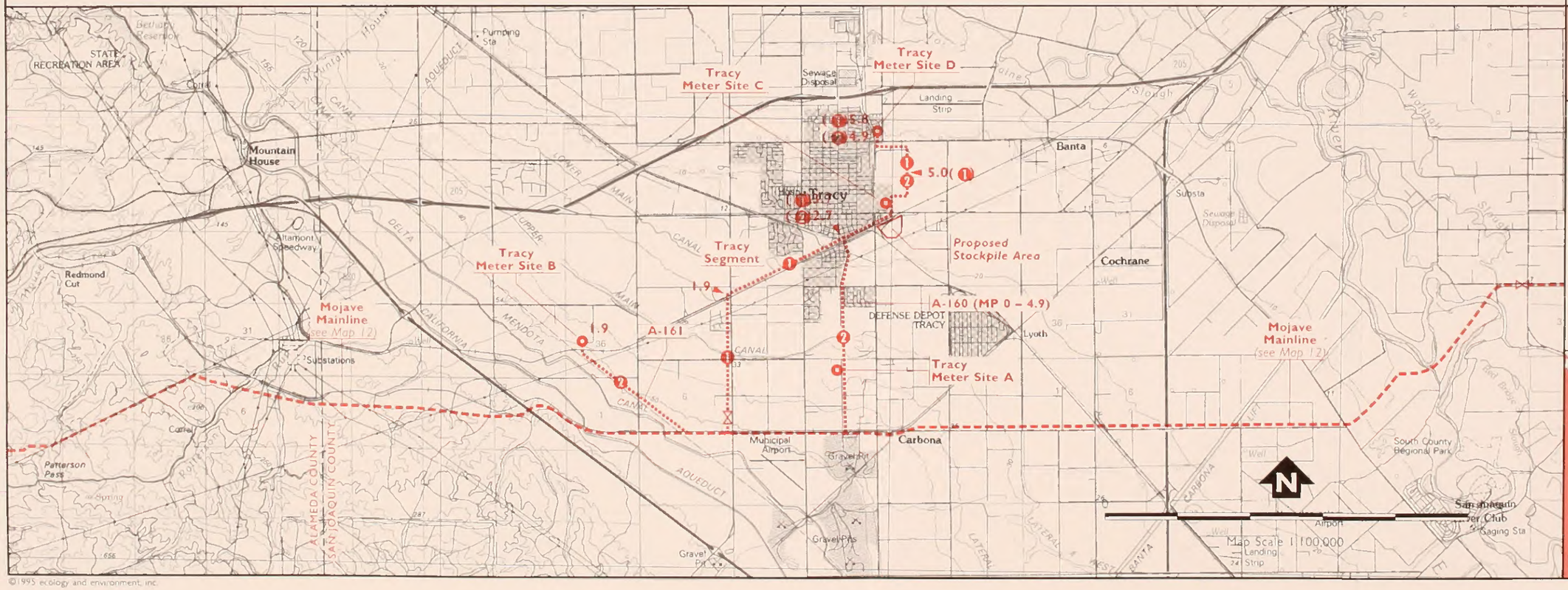
Map Vol – No.12 comp: 01/06/95



Mojave Pipeline Company

Proposed Northward Expansion

Tracy Segment and Alternatives



Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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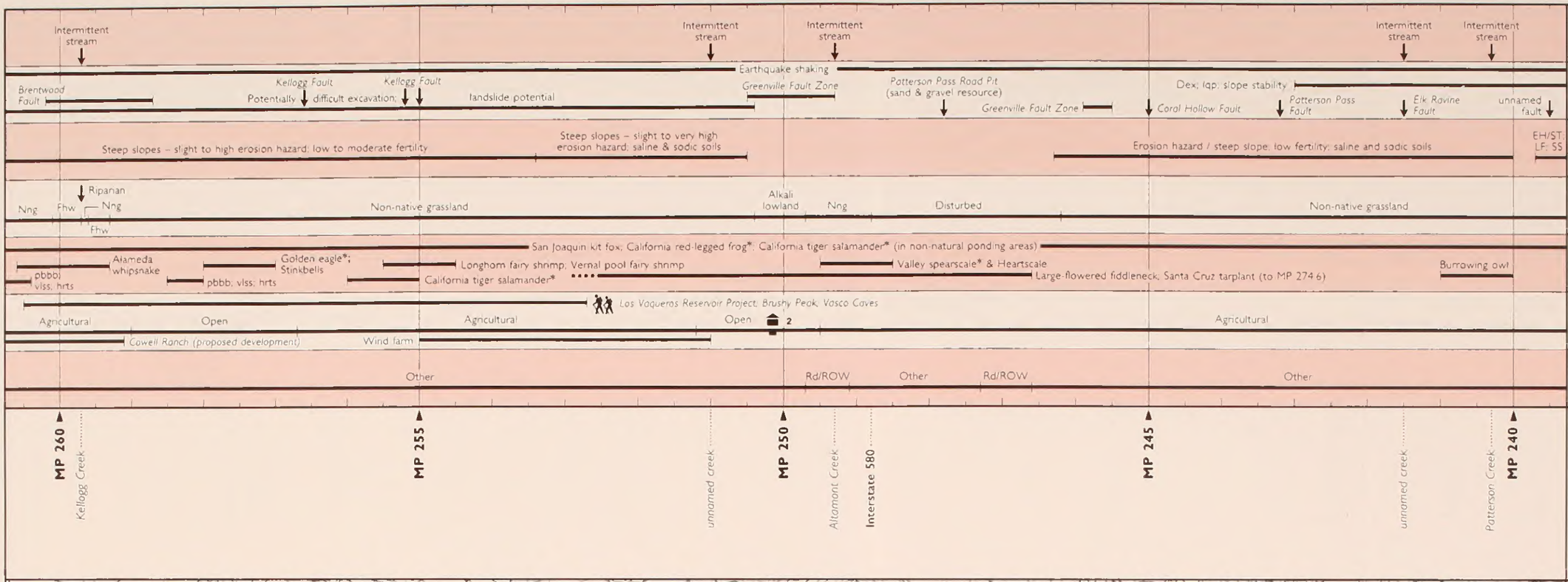

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Map Vol – No.13 comp 01/07/95

Water Resources

IS | IS | Intermittent stream | Buried aqueduct | Lined canal | Intermittent stream | Intermittent stream | Intermittent stream | Intermittent stream | Intermittent stream | Intermittent stream | Intermittent stream | IS

Geology

Earthquake shaking

Alluvium – Settlement / liquefaction potential

Potentially Dex; Lsp / Lqp in alluvium

Antioch / Davis Fault

Brentwood Fault

Potentially Dex; Lsp

Soils

Shallow soils; moderate to high erosion hazard

Steep slopes; slight to high erosion hazard; low to moderate fertility

Vegetative Communities

Disturbed | U/I | Non-native grassland | Riparian | Non-native grassland | Riparian | Non-native grassland | Alk | Nng | Alk | Nng | Alk | Nng | Rw | Nng | Rw | Nng

Fhw

Potential Threatened & Endangered Species Habitats

* *confirmed at this location*

San Joaquin kit fox*

Hbb; pbb; hrts; vlss*; brts*

Alameda whipsnake

Large-flowered fiddleneck; Santa Cruz tarplant

California red-legged frog

Golden eagle*

California tiger salamander*

Land Use

Open | Residential | ≥20 | ≥10 | 0-5 | Delta View Golf Course | Open | 1 | Buchanan Rd. Bypass | Contra Loma Regional Park | 85 | Open | Black Diamond Mine Regional Preserve | Agricultural | Cowell Ranch

Land Ownership

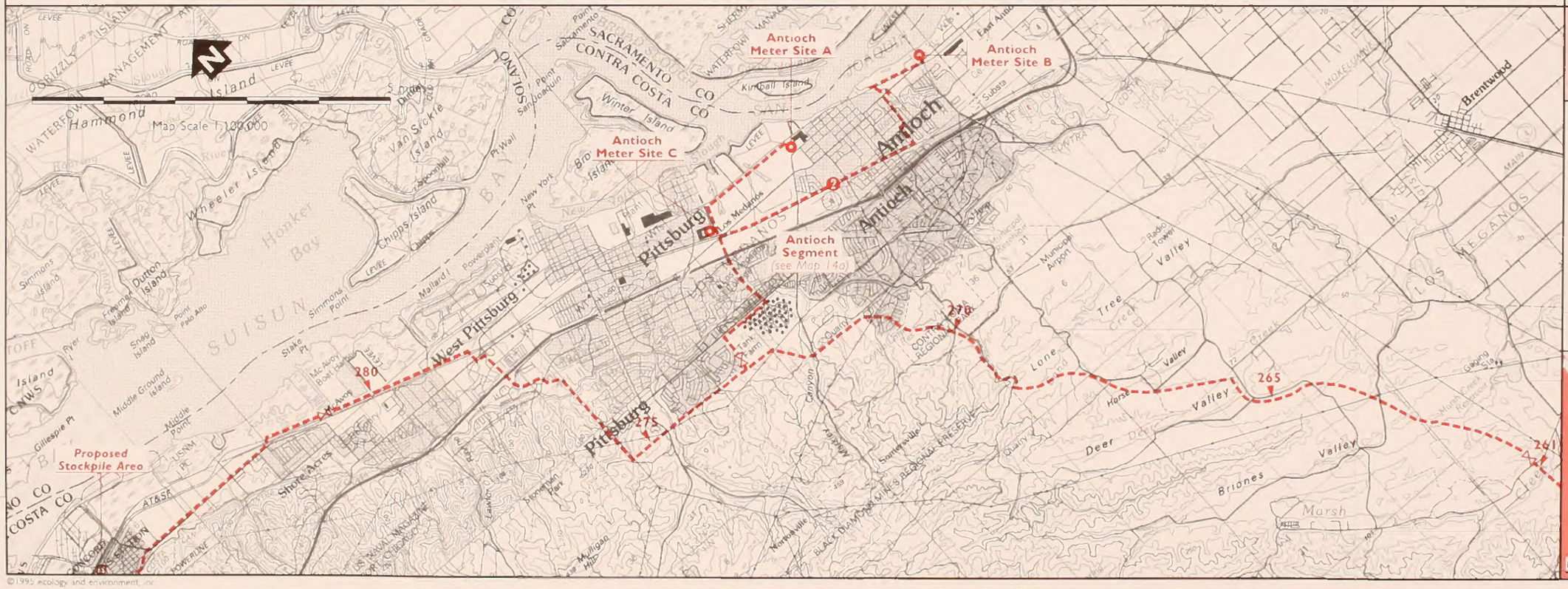
Railroad right-of-way | Urban street | Other | County road | Other | Fed (BOR) | Other

Bureau of Reclamation (BOR)

unnamed creek | **MP 280** | unnamed creek | unnamed creek | **State Route 4** | Mokelumne Aqueduct | Contra Costa Canal | **MP 275** | Kirker Creek | unnamed creek | **MP 270** | Sand Creek | Deer Creek | **MP 265** | Dry Creek | Briones Creek | Marsh Creek | **MP 260** | Kellogg Creek

Mojave Pipeline Company

Proposed Northward Expansion



Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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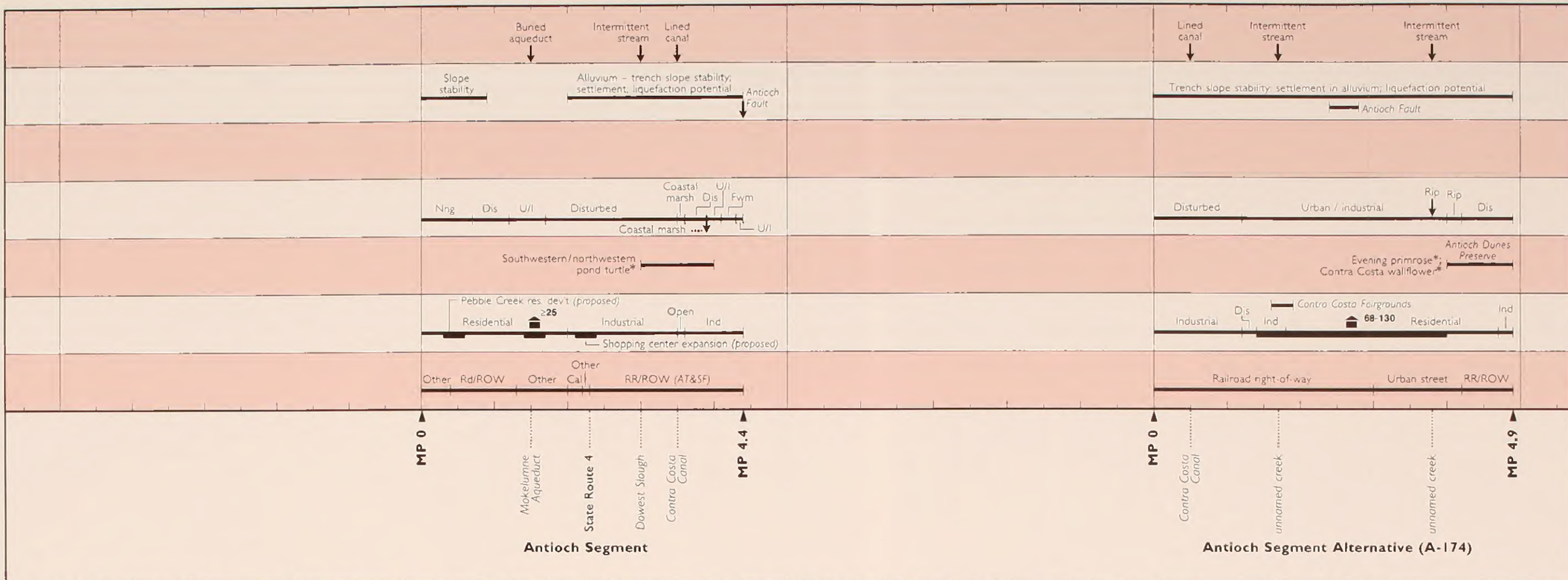
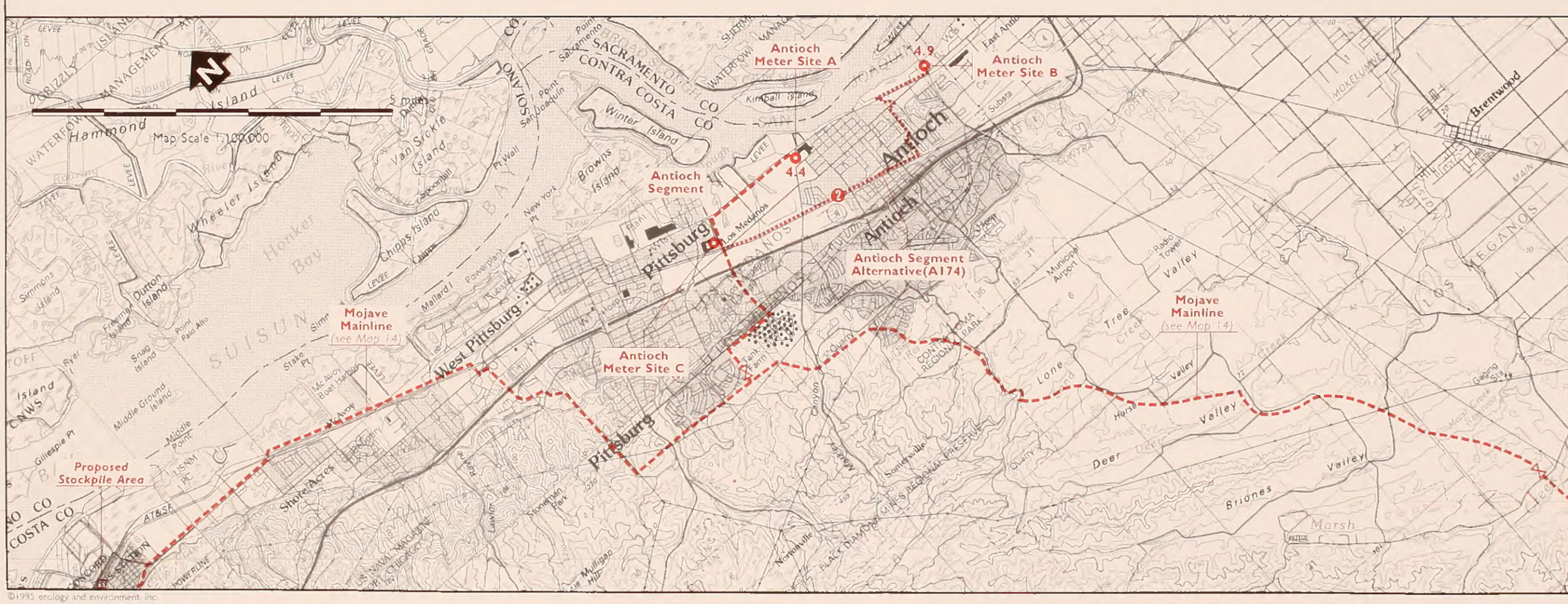


Mojave Pipeline Company

Proposed Northward Expansion



Antioch Segment and Alternative

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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Water Resources	Perennial stream; Perennial stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream
Geology	Earthquake shaking; Settlement & liquefaction potential; Alluvium - settlement & liquefaction potential; Potentially difficult excavation; Concord Fault Zone; Clayton Fault
Soils	EH/ST, low to mod. fertility; shallow to mod. deep soils; Saline and sodic soils; Shallow soils; moderate to high erosion hazard
Vegetative Communities	Coastal marsh; Nng; U/I; Rw; Cm; Rw; Dis; Coastal marsh; Vernal pool; Nng; Dis; Coastal marsh; Non-native grassland; Dis; Nng; Dis; Nng; Disturbed
Potential Threatened & Endangered Species Habitats * confirmed at this location	Double-crested cormorant; Suisun song sparrow*; Hairless allocarya; Suisun song sparrow*
Land Use	Industrial; Open; 3-5; Res
Land Ownership	RR/ROW; Other; Road right-of-way; Railroad right-of-way; Concord Naval Weapons Station

MP 291 · MP 290 · Pacheco Creek · Walnut Creek · Mt. Diablo Creek · MP 285 · unnamed creek · unnamed creek · unnamed creek · MP 280

Mojave Pipeline Company

Proposed Northward Expansion

Mojave North Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 15 of 43

Vallejo · Benicia · Martinez · Hercules · Crockett · Valona · Port Costa · Glencove · Morrow Island · Simmons Island · Pt Buckler · Garnet Pt · Ryer Island · Roe Island · Preston Pt · Gillespie Pt · Seal Islands · Pt Edith · Middle Ground Island · Snag Island · Dutton Island · Wheeler Island · Honker Bay · Van Sickle Island · Chipps Island · Suisun Point · Benicia Point · Pt Carquinez · Dillon Pt · Sample Pt · Bahia · Vine Hill · Avon · Shore Acres · West Pittsburg · Pittsburg · Mallard I · Powerplant · New York Pt · Pt Wall · Spoonbill · Stake Pt · Simmons Point · Middle Point · USNM PC · Clyde · Monsanto · Oil Refinery · Nevada Dock · Bush Hill · Tank Farm · Quarry · Cem · Hosp · Substa · Gaging Station · Memory Gardens Cemetery · Mallard Res · Lake Herman · Benicia State Recreation Area · Carquinez Bridge (TOLL) · Benicia Martinez Bridge (TOLL) · McAvoy Boat Harbor · Map Scale 1:62,500 · 0 1 2 3 4 5 miles

Martinez Meter Site B · Martinez Meter Site C · Martinez Meter Site A · Proposed Stockpile Area · MP 291 · MP 290 · MP 285 · MP 280 · 277

SOLANO CO · CONTRA COSTA CO · CARQUINEZ STRAIT · SUISUN BAY · SUISUN CUTOFF · CANADA DEL CAMBA · CANADA DEL HAMBRE · LA BOSSA · PINOLE · CONCORD NAVAL WEAPONS STATION · US NAVAL MAGAZINE PORT CHICAGO · CNWS

PACIFIC · SOUTHERN · AT&SF · SANTA FE · POWERLINE · LEVEE · ROAD · SLOUGH · GRADE · MERIDIAN

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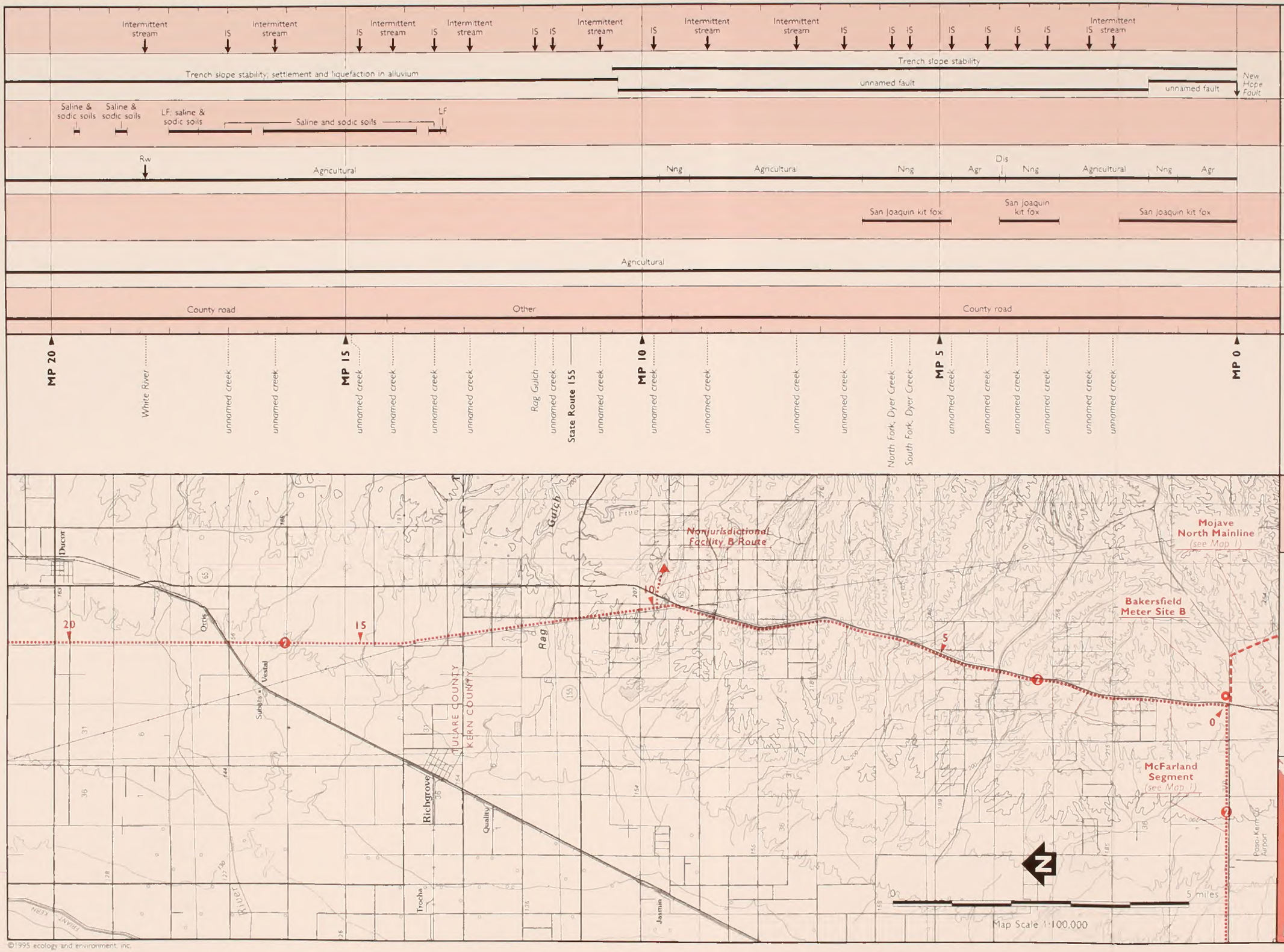
OTHER SEGMENTS



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Water Resources

Lined canal; Intermittent stream; Intermittent stream; Intermittent stream

Geology

Nonceville Pit; Trench slope stability; settlement and liquefaction potential in loose alluvium

Soils

Erosion hazard / high wind; low fertility; saline soils; Erosion hazard / high wind; low fertility; saline soils; Saline & sodic soils

Vegetative Communities

Agricultural; Agr; Dis; Agricultural; Dis; Agricultural; Rip; Agricultural; Rip; Ult; Dis; Agr; Dis; Dis (Porterville Airport); Agr; Nng; Agr; Dis; Nng; Rip; Agr; Ult (oil well); Agricultural; Ult; Ult

Potential Threatened & Endangered Species Habitats

Land Use

Agricultural; Res; 2; Agricultural; 11; 1; Res; 11; Agricultural; 18; Res; 11; 1; 2; Agricultural; 1; 1

Land Ownership

County road

MP 40 · Friant Kern Canal · MP 35 · Porter/Bates Slough · Tule River · State Route 190 · MP 30 · Deer Creek · MP 25 · MP 20

Mojave Pipeline Company

Proposed Northward Expansion

Lindsay Alternative

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 17 of 43

Map Scale 1:100,000

0 5 miles

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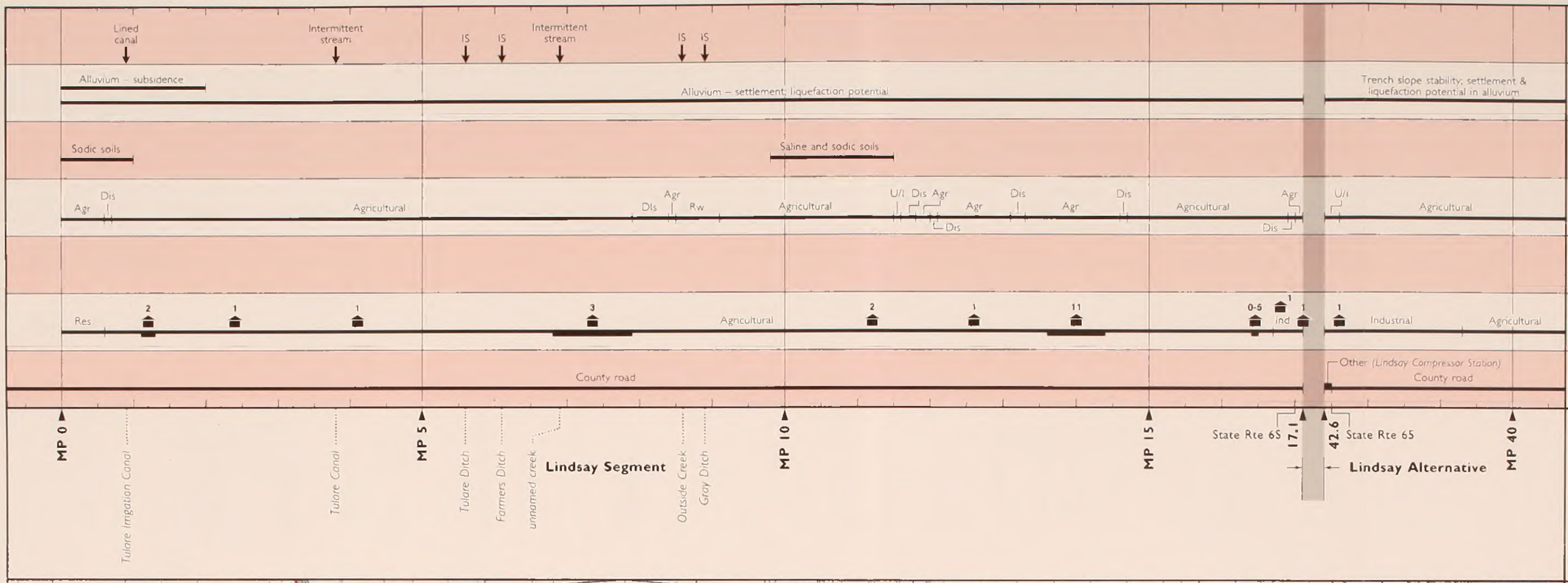
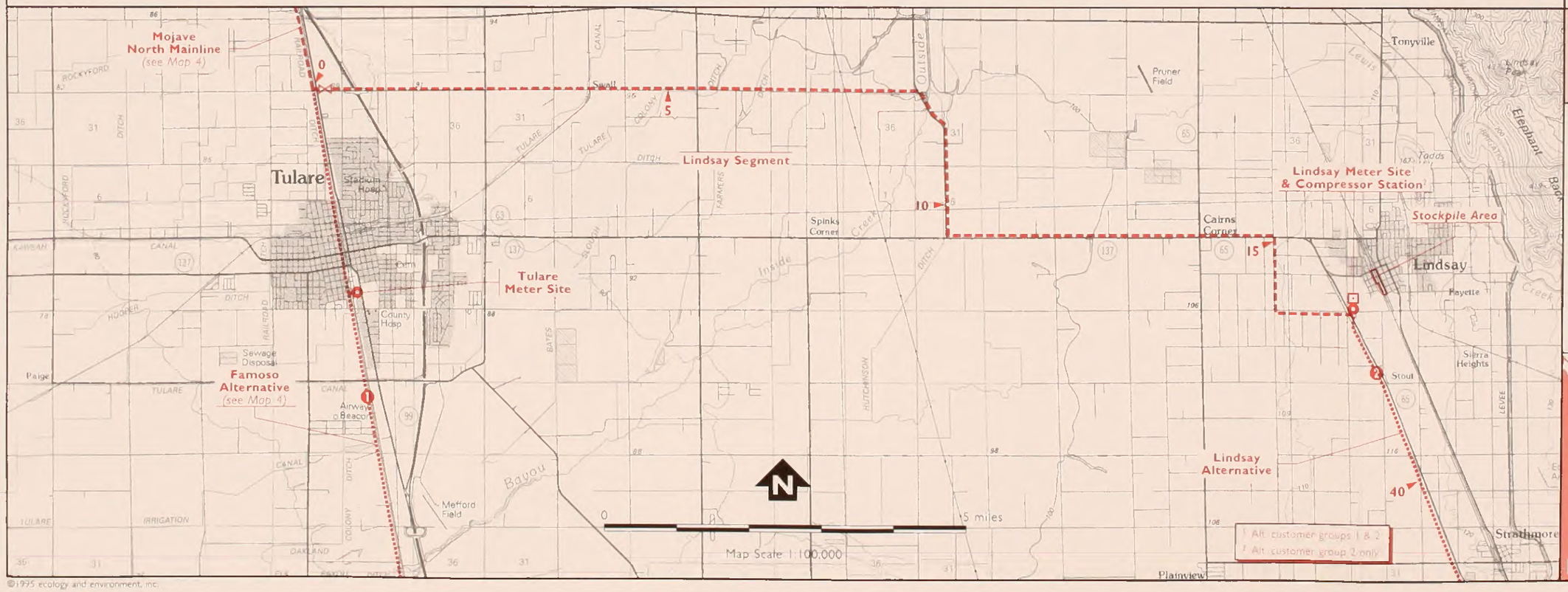


Mojave Pipeline Company

Proposed Northward Expansion



Lindsay Alternative & Lindsay Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 18 of 43

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Water Resources: Lined canal; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; I.S.; Lined canal; Intermittent stream; Intermittent stream

Geology: Subsidence

Soils: Low fertility; Shallow soils / low fertility (saline & sodic soils); Low fertility (saline & sodic soils); Shallow soils / low fertility (saline & sodic soils); Low fertility

Vegetative Communities: U/I; Nng; Agricultural; Urban/Industrial; Agr; Dis; U/I; Agr; U/I; Disturbed; Urban/Industrial; Dis; Urban/Industrial; Dis; U/I; Agr; Agricultural; Rip; Rip; Rip; Nng; Agricultural; Nng; Agr; Nng; Agr; Dis; U/I

Potential Threatened & Endangered Species Habitats
* confirmed at this location

Valley elderberry longhorn beetle

San Joaquin kit fox

Recurved larkspur*

Land Use: ≥10; 1; Residential; 1; 1; 13-25; 0-5; Agr; Residential; Industrial; Residential; Agricultural; Res; Agricultural; 1; Industrial

Railroad right-of-way *(Southern Pacific)*

MP 20 — *Lemoore Canal* — *Last Chance Ditch (West Branch)* — *Last Chance Ditch (Center Branch)* — *Last Chance Ditch* — MP 15 — *People's Ditch* — *People's Ditch (East Branch)* — MP 10 — *Settler's Ditch* — *Malaga Canal* — *Lakeside Ditch* — *Crass Creek* — *Highline Canal* — MP 5 — *unnamed creek* — *unnamed creek* — MP 0

Mojave Pipeline Company

Proposed Northward Expansion

Coalinga Segment

Lemoore Meter Site A

Hanford Meter Site B

Hanford Meter Site A

Tulare Meter Site C

Mojave North Mainline (see Map 4)

Grangeville; Armona; Hanford; Kings County General Hospital; Municipal Airport; Shell; Hamblin; Remnoy; Sewage Disposal; Percolation Basin; Landing Strip; Mosquito; Goshen; Crass Ditch; Lakeside Ditch; Peoples Ditch; Settlers Ditch; Melga Canal; Lakeland Ditch; Cross Ditch; Cross Creek; Mill Creek; Kings County; Tulare County; Road 80; Road 76; Road 74; Road 72; Road 70; Road 68; Road 66; Road 64; Road 62; Road 60; Road 58; Road 56; Road 54; Road 52; Road 50; Road 48; Road 46; Road 44; Road 42; Road 40; Road 38; Road 36; Road 34; Road 32; Road 30; Road 28; Road 26; Road 24; Road 22; Road 20; Road 18; Road 16; Road 14; Road 12; Road 10; Road 8; Road 6; Road 4; Road 2; Road 1; Road 3; Road 5; Road 7; Road 9; Road 11; Road 13; Road 15; Road 17; Road 19; Road 21; Road 23; Road 25; Road 27; Road 29; Road 31; Road 33; Road 35; Road 37; Road 39; Road 41; Road 43; Road 45; Road 47; Road 49; Road 51; Road 53; Road 55; Road 57; Road 59; Road 61; Road 63; Road 65; Road 67; Road 69; Road 71; Road 73; Road 75; Road 77; Road 79; Road 81; Road 83; Road 85; Road 87; Road 89; Road 91; Road 93; Road 95; Road 97; Road 99; Road 198; Levee; Ditch; Canal; Branch; Creek; Mill; Fork; Cross; East; North; Side; Long; Independence; Lakeside; Denver; Chance; Melga; Peoples; Settlers; Lakeland; Cross; Mill; Goshen; Kings County; Tulare County; Road 80; Road 76; Road 74; Road 72; Road 70; Road 68; Road 66; Road 64; Road 62; Road 60; Road 58; Road 56; Road 54; Road 52; Road 50; Road 48; Road 46; Road 44; Road 42; Road 40; Road 38; Road 36; Road 34; Road 32; Road 30; Road 28; Road 26; Road 24; Road 22; Road 20; Road 18; Road 16; Road 14; Road 12; Road 10; Road 8; Road 6; Road 4; Road 2; Road 1; Road 3; Road 5; Road 7; Road 9; Road 11; Road 13; Road 15; Road 17; Road 19; Road 21; Road 23; Road 25; Road 27; Road 29; Road 31; Road 33; Road 35; Road 37; Road 39; Road 41; Road 43; Road 45; Road 47; Road 49; Road 51; Road 53; Road 55; Road 57; Road 59; Road 61; Road 63; Road 65; Road 67; Road 69; Road 71; Road 73; Road 75; Road 77; Road 79; Road 81; Road 83; Road 85; Road 87; Road 89; Road 91; Road 93; Road 95; Road 97; Road 99; Road 198

Map Scale 1:100,000

5 miles

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 19 of 43

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Lined canal

IS PS

IS Intermittent stream

Lined canal

Water Resources

Subsidence

Earthquake shaking

Liquefaction potential: settlement

Geology

Asbestos-containing sediment

Low fertility (saline and sodic soils)

Low fertility

Soils

Agr | Urban/Industrial | Agr | U/I | Dis | Freshwater marsh | Agricultural | Rip | Agricultural | Nng | Chs | Agr | Urban/Industrial | Nng | Agr

Vegetative Communities

San Joaquin kit fox

Scattered non-natural ponding areas – suitable for vernal pool-associated crustaceans

Valley elderberry longhorn beetle

Fresno kangaroo rat

Valley elderberry longhorn beetle

Potential Threatened & Endangered Species Habitats

Agricultural | Lemoore Naval Air Station | Agricultural | other | Agricultural | ≥40 | Residential | ≥10 | 1

Land Use

Railroad right-of-way *(Southern Pacific)*

Land Ownership

MP 40 — *California Aqueduct* — **MP 35** — State Route 198 — **MP 30** — *unnamed creek* — *North Kings River* — **MP 25** — *unnamed wash* — *unnamed wash* — **MP 20** — *Lemoore Canal*

Mojave Pipeline Company

Proposed Northward Expansion

Coalinga Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Huron 40 35 30 25 20

SOUTHERN PACIFIC

Westhaven (Siding)

Vanguard

MILITARY RESERVATION

Westhaven

Pumping Sta

Landing Strip

Substa

FRESNO COUNTY / KINGS COUNTY

ROAD ON LEVEE

LEVEE

Lemoore Meter Sites

Lemoore B

A

Rossi

Halls Corner

South Fork

Green

Map Area

Map Scale 1:100,000

5 miles

Map 20 of 43

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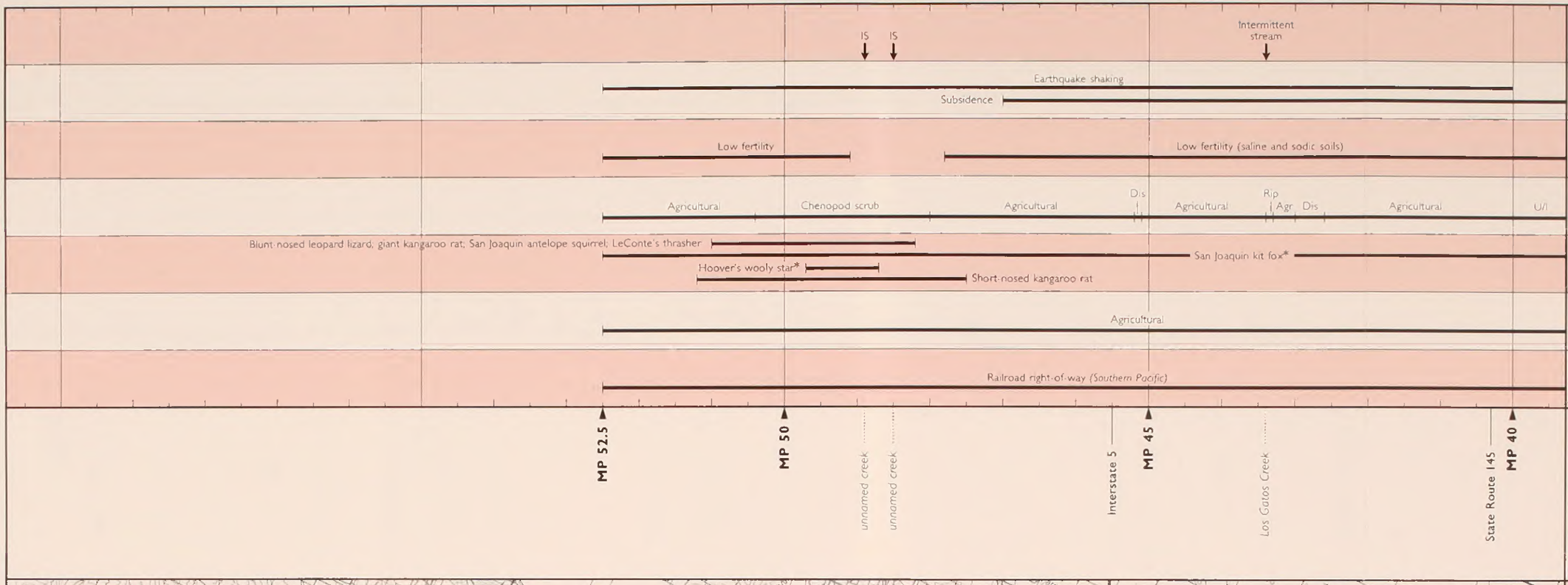
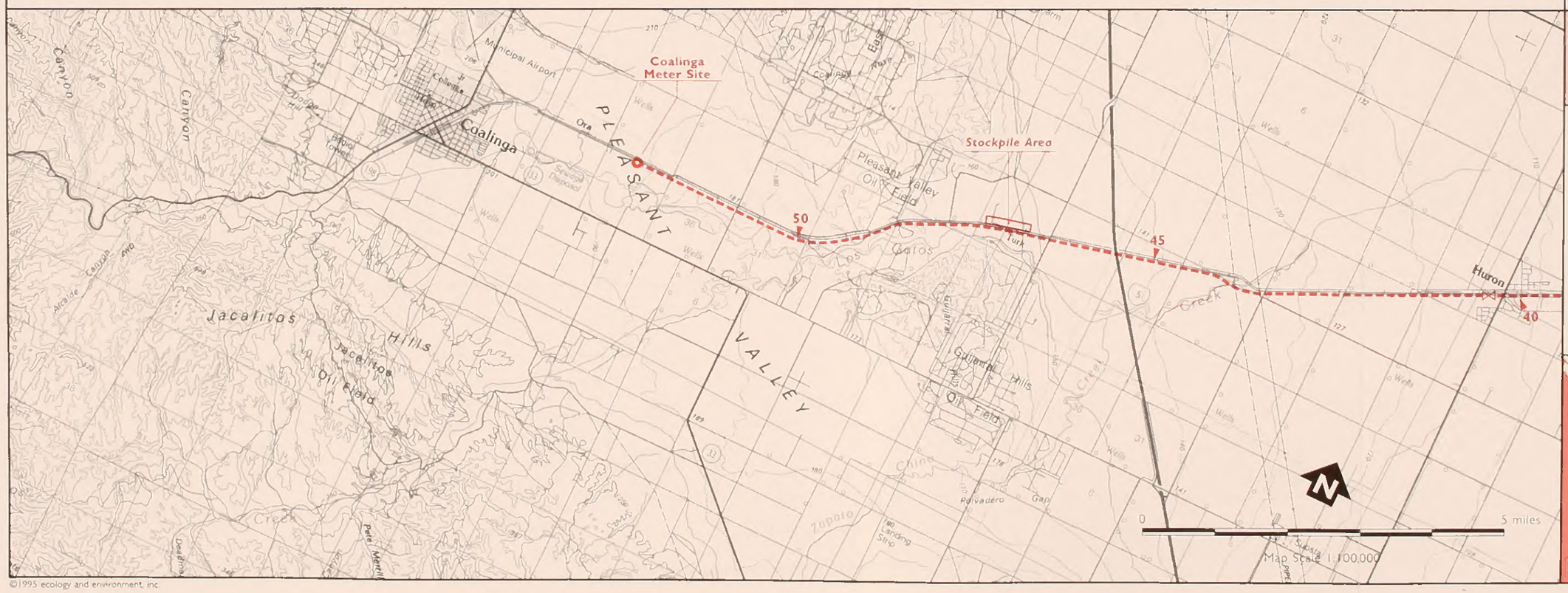


Mojave Pipeline Company

Proposed Northward Expansion

Coalinga Segment



Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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Water Resources

PS PS IS IS Intermittent stream Intermittent stream IS IS Intermittent stream Intermittent stream IS Intermittent stream

Geology

Stockton Fault

Settlement (alluvium)

Soils

Erosion hazard – high wind / low fertility

Vegetative Communities

Agricultural U/I Agricultural Nng Dis U/I Rip Agricultural Rip U/I Rip Rip Agricultural Rip Dis Agricultural Dis Agricultural

Non-natural ponding area

Potential Threatened & Endangered Species Habitats

* *confirmed at this location*

Golden eagle*

Swainson's hawk

Land Use

Agricultural 9 Agricultural 0-8 O Agr 3 Open Agricultural 1 1 3 Agr Open Open Agr 1 Agricultural Open Open Agricultural 4 Agricultural 20 Agricultural

Res

Land Ownership

County road

MP 20 State Route 26 Mormon Slough Mormon Slough Duck Creek State Route 4 MP 15 unnamed creek unnamed creek Littlejohns Creek Littlejohns Creek unnamed creek MP 10 Lone Tree Creek Lone Tree Creek State Route 120 MP 5 unnamed creek unnamed creek State Route 99 MP 0

Mojave Pipeline Company

Proposed Northward Expansion

Sacramento Mainline

Legend

- Proposed pipeline (core)
- Alternatives (*customer group* 1 *or* 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Linden Walthall Slough Creek Collegeville Stockton Meter Site Lathrop Segment (see Map 26) Five Corners Atlanta Simms Ripon Segment (see Map 11) Ripon Meter Site Ripon Mojave Mainline (see Map 11) Calla Bard Summer Home Turner Lone Creek Littlejohns Creek Burnham NORTHERN CALIFORNIA YOUTH CENTER TULARE CO SAN JOAQUIN CO STANISLAUS CO

20 15 10 5 0

0 5 miles

Map Scale 1:100,000

Map Area

Map 22 of 43

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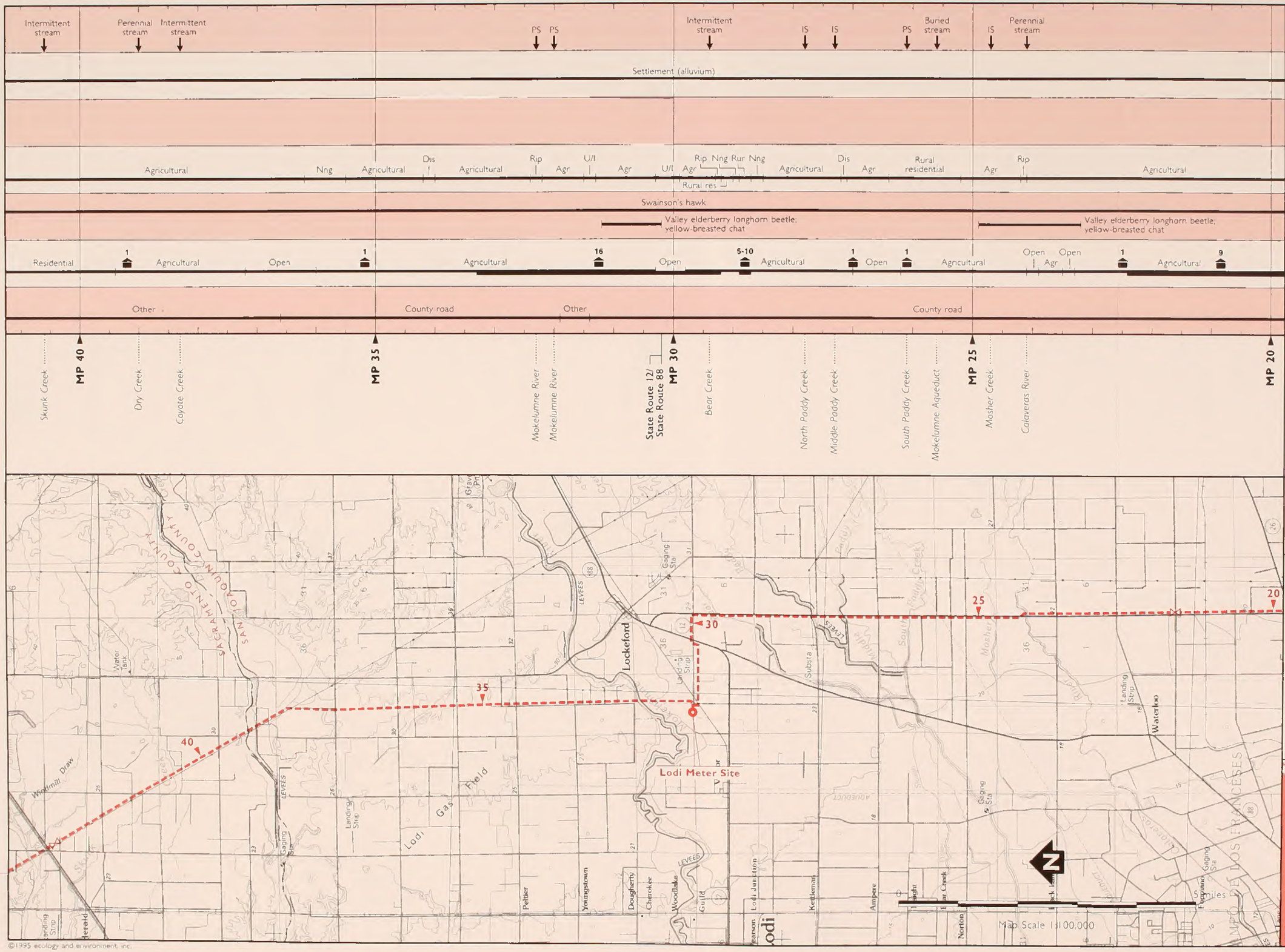

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Water Resources

Geology

Soils

Vegetative Communities

Potential Threatened & Endangered Species Habitats
* confirmed at this location

Land Use

Land Ownership

IS
Intermittent stream
Intermittent stream
PS
Perennial stream
IS
IS
IS
IS
IS
IS
Intermittent stream

Trench slope stability (settlement in alluvium)
Pit (possible sand/gravel resources)
Alluvium (settlement)

Dis
Wetland
Agr
Nng
Agr
U/I
Nng
Res
Dis
U/I
U/I
Rural res
Nng
Vern
Agr
Nng
Rural residential
U/I
U/I
Fal
Fal
Agr
Dis
Agr
U/I
Agricultural
U/I
Agr
Nng
Agr
U/I
Vern
Dis
Agr
Nng
Rw
Nng
Agriculture

Burrowing owl*
Valley elderberry longhorn beetle
Valley elderberry longhorn beetle; yellow-breasted chat
Scattered non-natural ponding areas (suitable for vernal pool fairy shrimp*)
Swainson's hawk

Residential
Industrial
Residential
Agricultural
Residential
5
Ind
1
Res
Agricultural
1
Residential

County road
Railroad right-of-way (CCT)
Other

Laguna Creek
MP 60
State Route 99
Laguna Creek
unnamed creek
MP 55
Deer Creek
Cosumnes River
unnamed creek
MP 50
North Fork, Badger Creek
unnamed creek
South Fork, Badger Creek
MP 45
unnamed creek
Laguna River
MP 41
Skunk Creek
MP 40

Mojave Pipeline Company

Proposed Northward Expansion

Sacramento Mainline

Sacramento Alternative A-159 (see Map 25)

Sacramento Meter Site B

63.4

60

55

50

45

41

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 24 of 43

Map Scale 1:100,000

5 miles

MP 63.5

MP 60

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Water Resources

Geology

Soils

Vegetative Communities

Potential Threatened & Endangered Species Habitats

Land Use

Land Ownership

Mojave Pipeline Company

Proposed Northward Expansion

Sacramento Segment (A-159)

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 25 of 43

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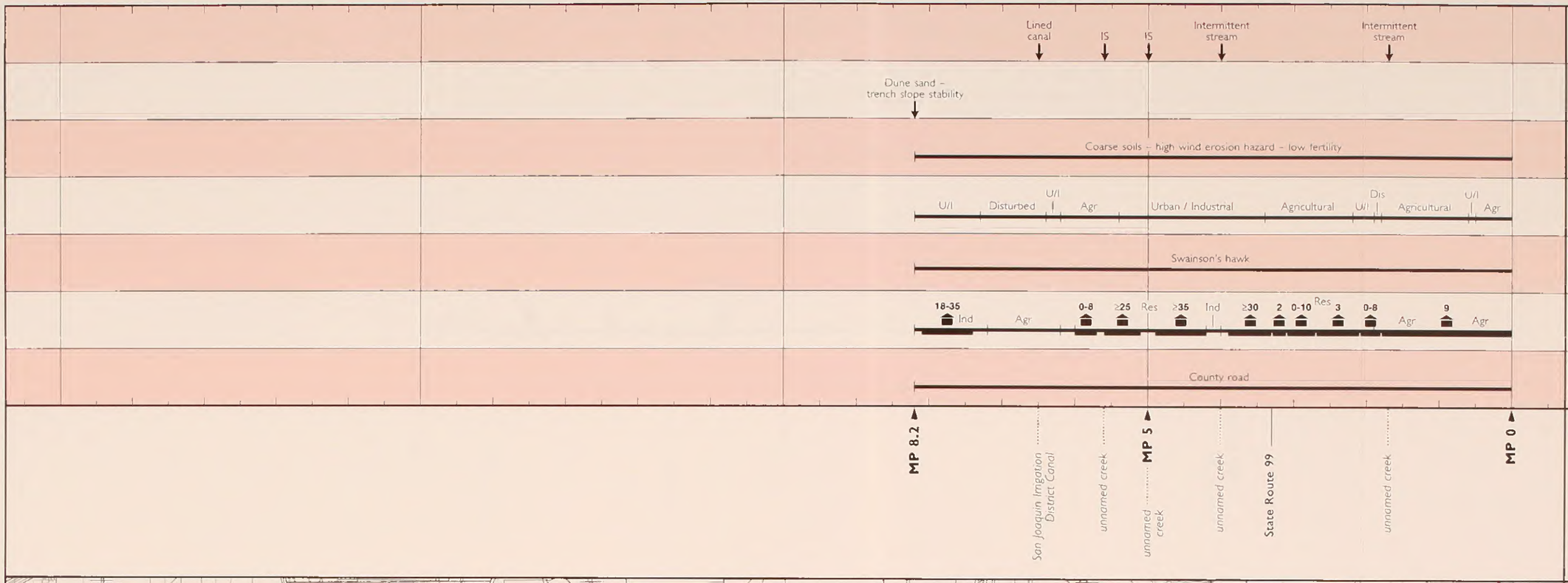
Map Vol – No.25 comp 01/06/95



Water Resources

Geology

Soils

Vegetative Communities

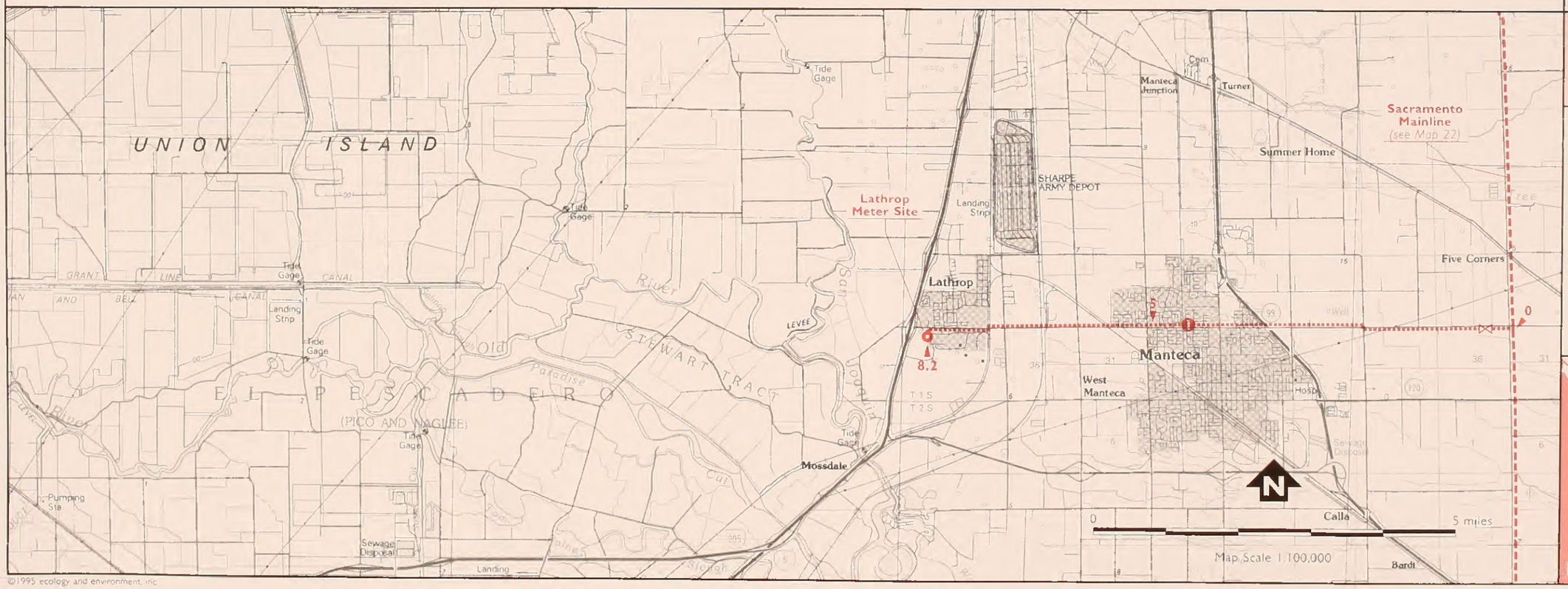
Potential Threatened & Endangered Species Habitats

Land Use

Land Ownership

Mojave Pipeline Company

Proposed Northward Expansion



Lathrop Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 26 of 43

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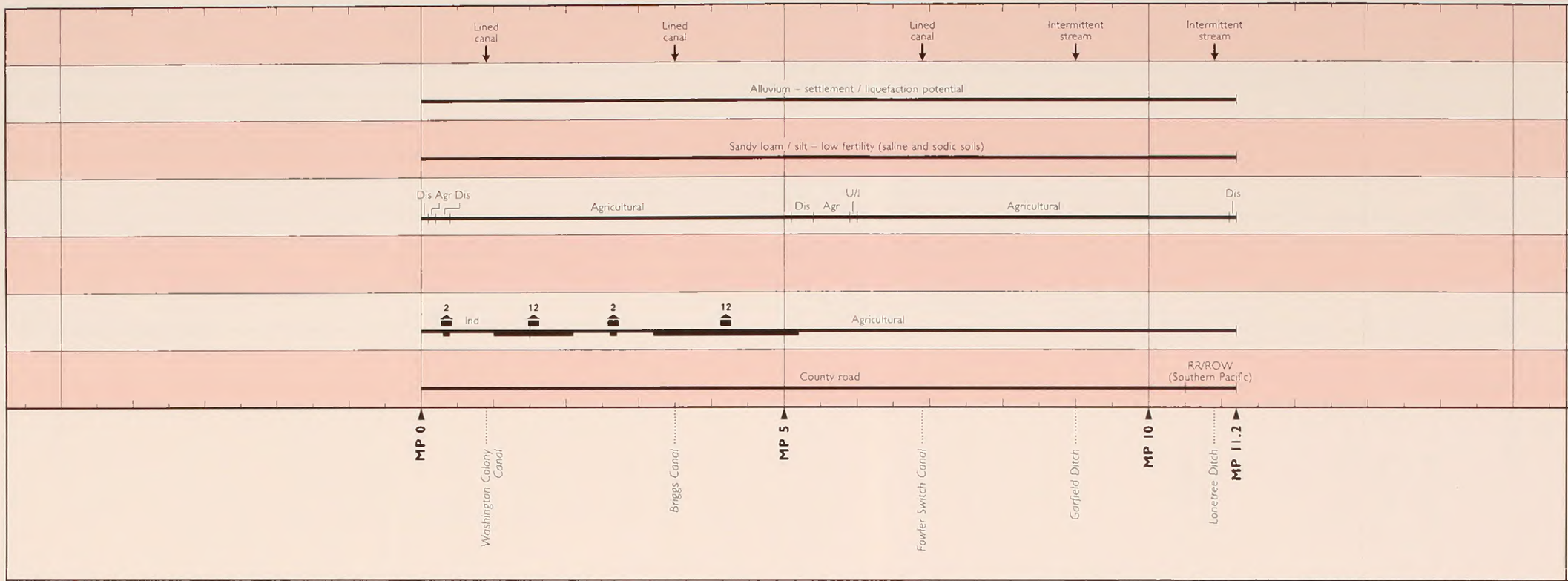
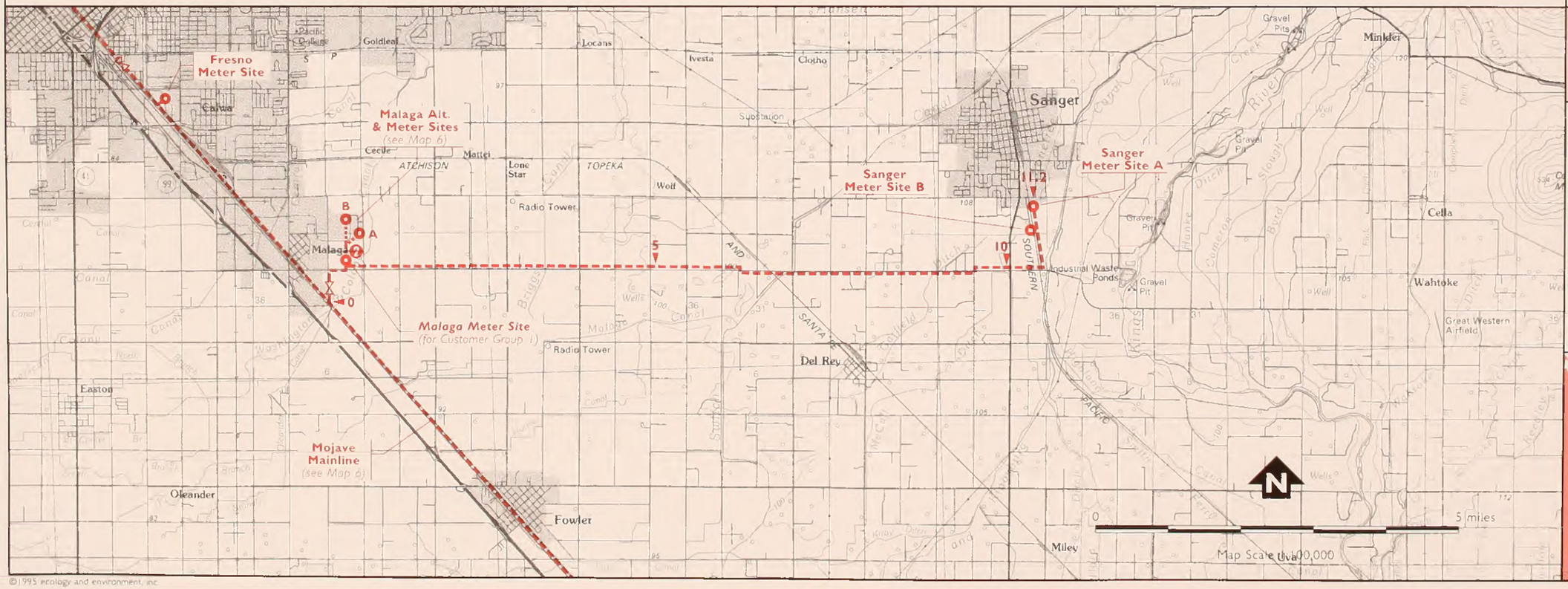


Mojave Pipeline Company

Proposed Northward Expansion



Sanger Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 27 of 43

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Water Resources

I.S. · Intermittent stream · I.S. · Buried aqueduct · I.S. · PS · I.S. · I.S. · I.S. · I.S. · Intermittent stream · Intermittent stream · LC · IS · Intermittent stream · IS · LC · Lined canal

Geology

Earthquake shaking along entire length of Palo Alto segment

Potential difficult excavation / landslide potential where slope is >15%

Alluvium: trench slope stability; settlement; liquefaction potential

Verona Fault

Landslide

Los Positas Fault, South Branch

Los Positas Fault, North Branch

unnamed fault

Sunol Pit (sand & gravel resource)

Calaveras Fault Zone

Soils

Erosion hazard / steep slopes; low fertility

Erosion hazard - steep slopes / low fertility

EH/ST - LF

EH/ST

Vegetative Communities

Nng · Fhw · Nng · Fhw · Nng · Fhw · Non-native grassland · U/I · Dis · Nng · Nng · Fhw · Nng · Fhw · Non-native grassland · Rw · Non-native grassland · Rw · Agricultural · Nng · Disturbed

Potential Threatened & Endangered Species Habitats

* confirmed at this location

California tiger salamander*

San Joaquin kit fox

Large-flowered fiddleneck; Santa Cruz tarplant

Land Use

Open · Residential · Agricultural · 1 · 2 · Res · Open · Agr · Open · Sycamore Grove Park · Agricultural · 1 · Residential · 1 · 1

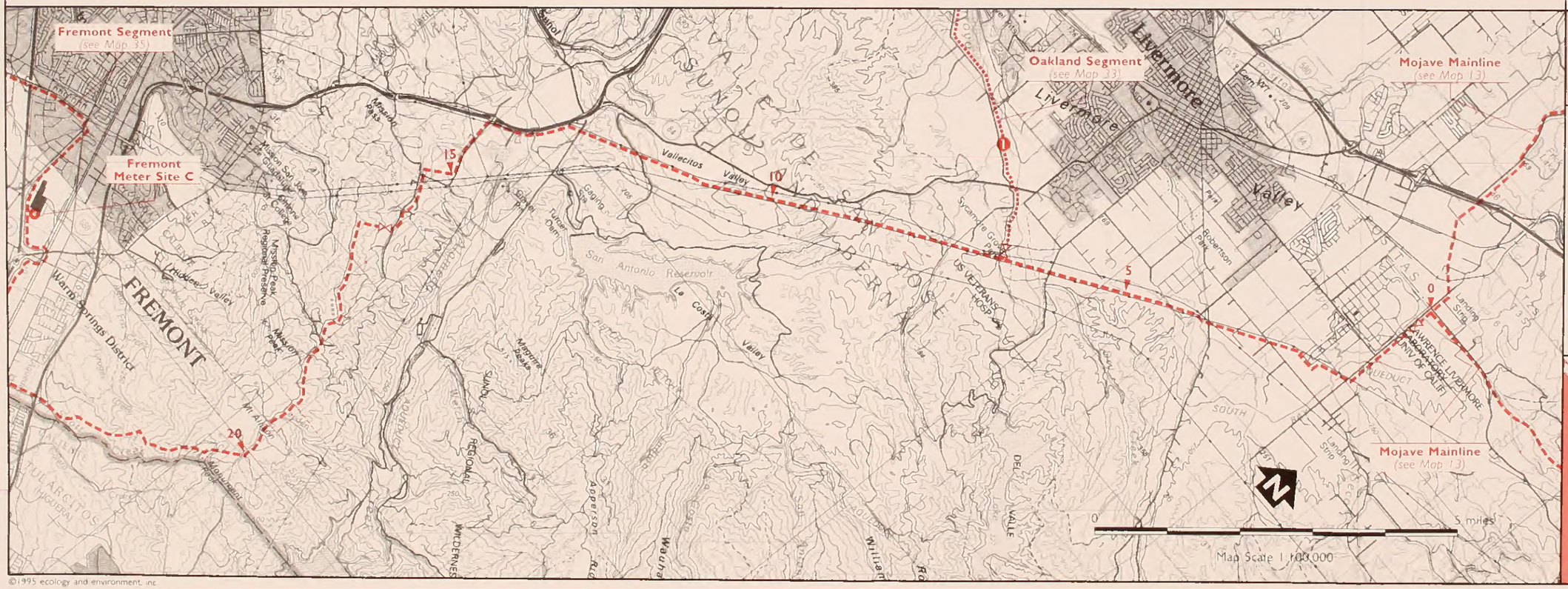
Land Ownership

Other · County road · Other · Co. road · Other · County road

MP 20 · Leyden Creek · unnamed creek · State Route 84 · Sheridan Creek · Hetch-Hetchy Aqueduct · MP 15 · Sheridan Creek · San Antonio Creek · Alameda Creek · unnamed creek · Vallecitos Creek · Vallecitos Creek · MP 10 · unnamed creek · Arroyo Valle · MP 5 · South Bay Aqueduct · unnamed creek · Arroyo Mocho · South Bay Aqueduct · Arroyo Seco · South Bay Aqueduct · MP 0

Mojave Pipeline Company

Proposed Northward Expansion



Palo Alto Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 28 of 43

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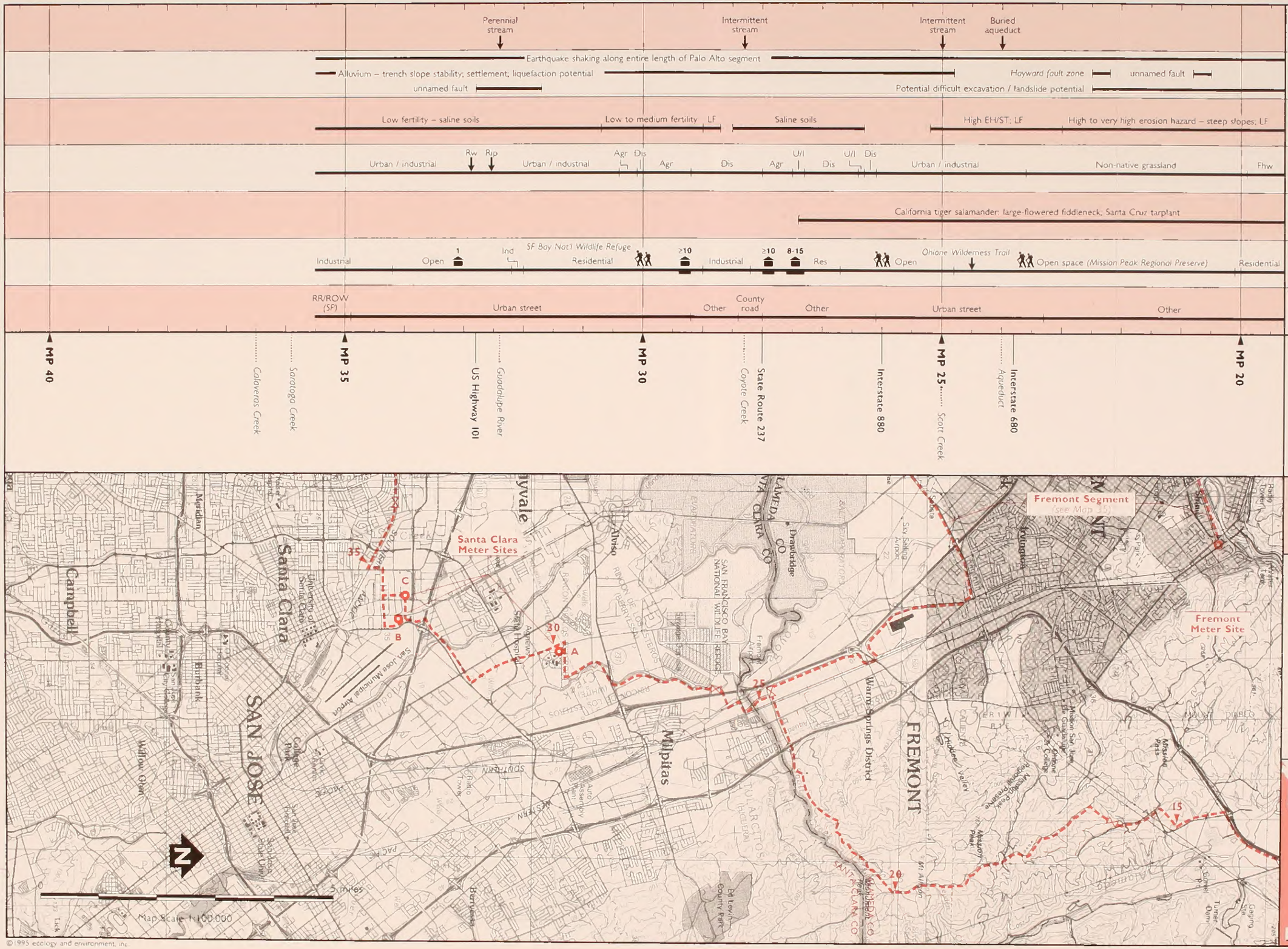

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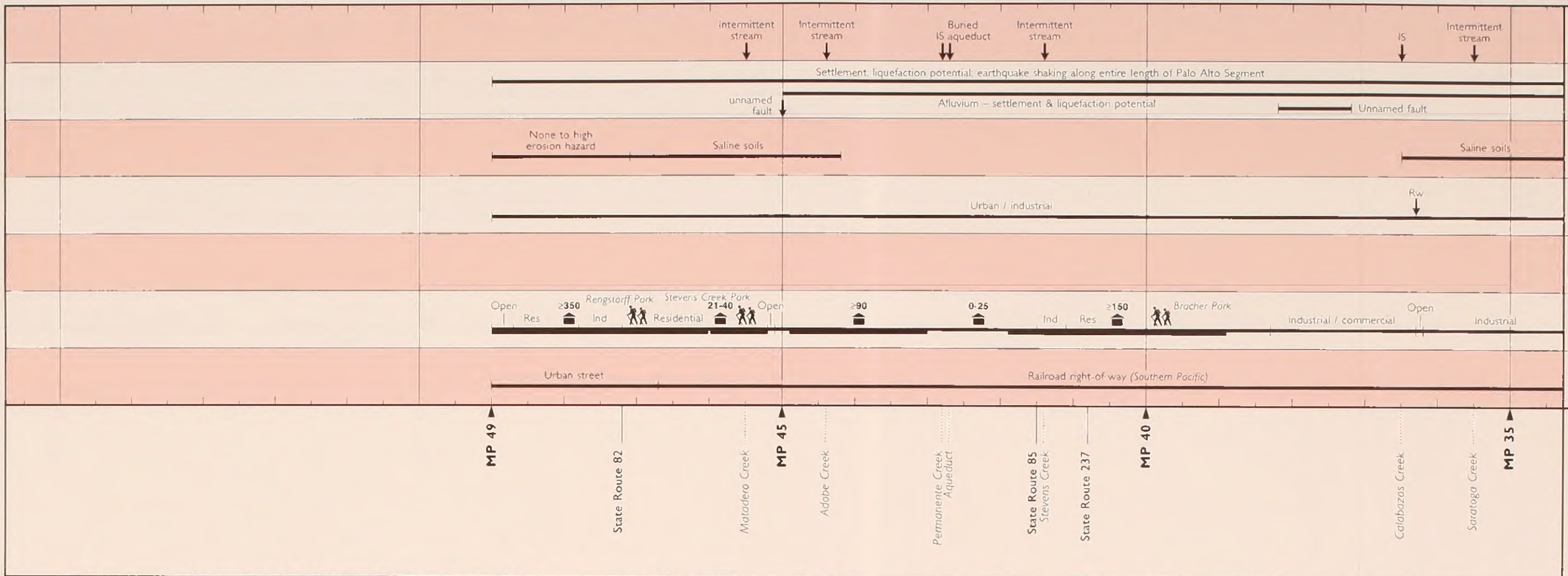
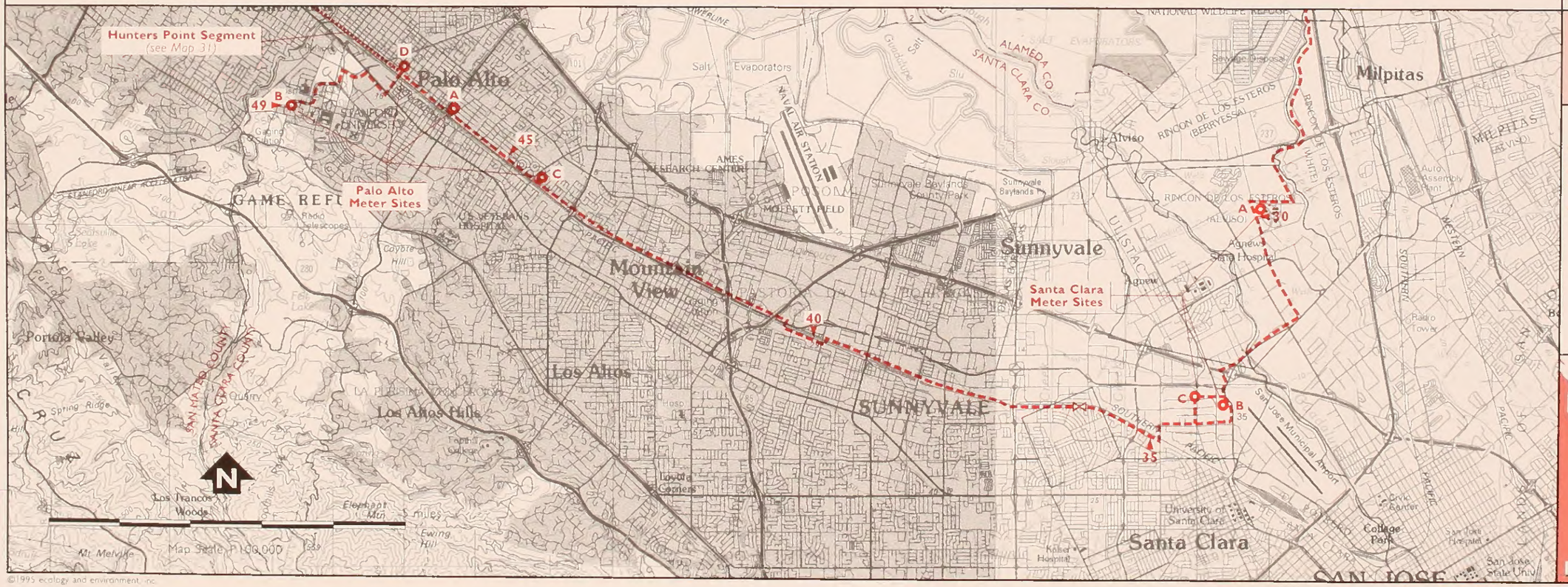


Mojave Pipeline Company

Proposed Northward Expansion



Palo Alto Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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Map Vol – No.30 comp 01/06/95

Water Resources: Intermittent stream; Lined canal; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream; Intermittent stream

Geology: Earthquake shaking along entire length of Hunters Point Segment; San Bruno Fault; San Bruno Fault extension; Unnamed fault; Recent fill; liquefaction potential in alluvium; trench slope stability; settlement

Soils: None to high erosion hazard (loam / clay loam)

Vegetative Communities: U/I; Freshwater marsh; Ripanan; Fwm; Urban / industrial; Rip; Fwm; Dis; Rip; Rip; Urban / industrial; Rw

Potential Threatened & Endangered Species Habitats: Potential San Francisco garter snake habitat

Land Use: Ind; Residential; Belle Air School & Lion's Field; Industrial; Open; Washington Park & Burlingame High School; ≥55; Residential; Bay Meadows Race Track; Industrial; Trinta Park; 0-25; Residential; 37-70; Garfield School; Halbrook-Palmer Park; Burgess Res Park; El Camino Park

Land Ownership: Railroad Right-of-Way (Southern Pacific); Urb St; RR/ROW (SP); Rd/ROW; RR/ROW (SP); other; Urban street ROW; Railroad Right-of-Way (Southern Pacific); Rd/ROW; RR/ROW (SP); Urban street ROW

MP 20 · Mills Creek · MP 15 · San Mateo Creek · Laurel Creek · MP 10 · Belmont Creek · San Carlos Creek · Cordilleras Creek · MP 5 · Irrigation ditch · San Francisquito Creek · MP 0

Mojave Pipeline Company

Proposed Northward Expansion

Hunters Point Segment

San Francisco Segment and Meter Site (see Map 32)

Palo Alto Segment and Meter Site B (see Map 30)

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map 31 of 43

Map Scale 1:100,000

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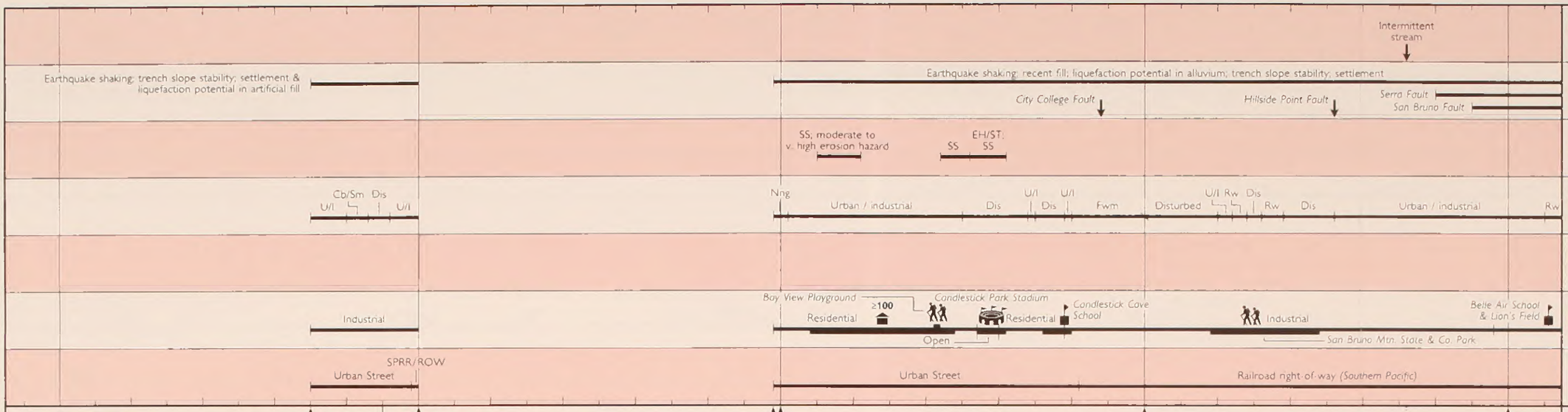

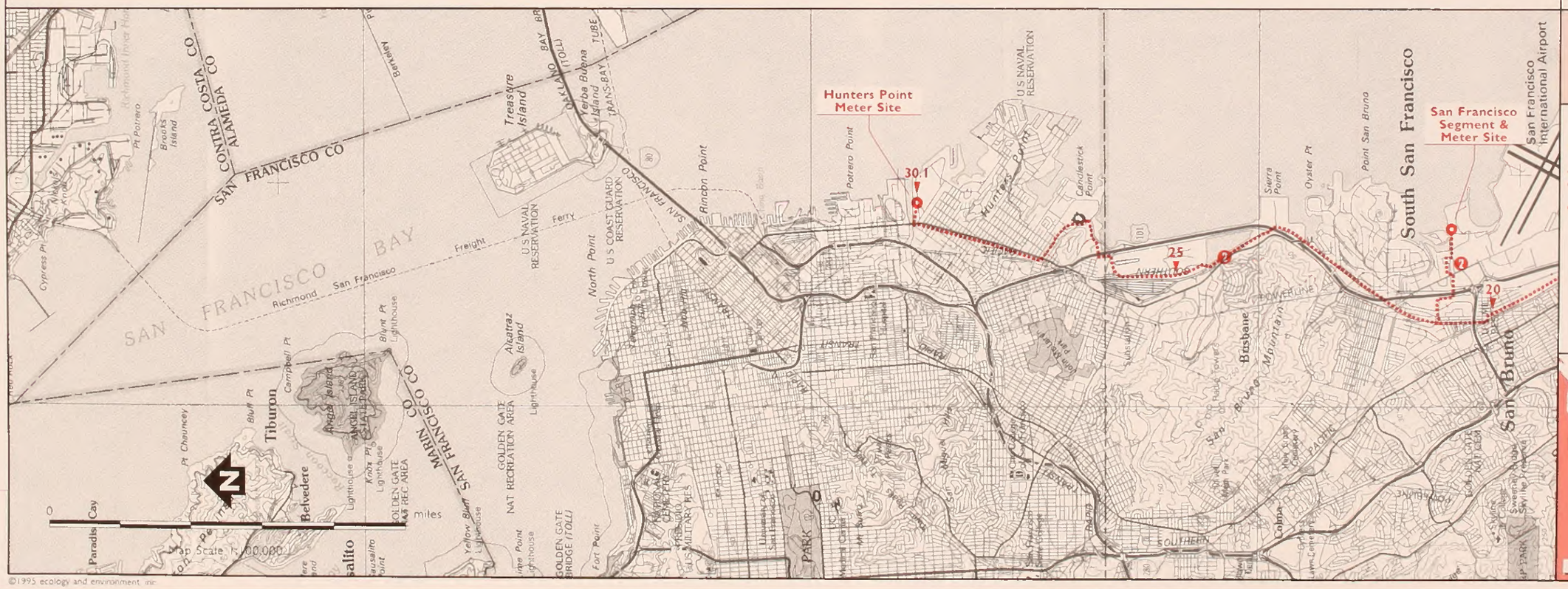
Hunters Point Meter Site
30.1
San Francisco Segment & Meter Site
25
20
SAN FRANCISCO BAY
CONTRA COSTA CO
ALAMEDA CO
SAN FRANCISCO CO
MARIN CO
Treasure Island
Yerba Buena Island
OAKLAND BAY BRIDGE (TOLL)
TRANS-BAY TUBE
U.S. NAVAL RESERVATION
U.S. COAST GUARD RESERVATION
North Point
Rincon Point
Potrero Point
Hunters Point
Candlestick Point
Sierra Point
Oyster Pt
Point San Bruno
South San Francisco
San Francisco International Airport
San Bruno
Brisbane
San Bruno Mountain
Tiburon
Belvedere
Angel Island
ANGEL ISLAND STATE PARK
Alcatraz Island
GOLDEN GATE NAT RECREATION AREA
GOLDEN GATE BRIDGE (TOLL)
Fort Point
Yellow Bluff
Point Bonita
Lighthouse
Bluff Pt
Knox Pt
Campbell Pt
Pt Chauncey
Cypress Pt
Pt Potrero
Brooks Island
Richmond
Berkeley
Richmond San Francisco Ferry
Freight
Paradise Cay
Sausalito
Map Scale 1:100,000
0
miles
Hunters Point
Potrero
Bayview
Islais Creek
Mission Bay
Visitacion Valley
Crocker Amazon
Excelsior
Ingleside
Merced Heights
Ocean View
Lakeshore
Stonestown
Parkmerced
Lake Merced
Daly City
Colma
Golden Gate Park
Presidio
Mt Sutro
Twin Peaks
Glen Canyon Park
Diamond Heights
Noe Valley
Mission
Castro
Haight Ashbury
Richmond
Sunset
Golden Gate Park
Ocean Beach
Lincoln Park
Presidio
Fort Mason
Marina
Pacific Heights
Nob Hill
Russian Hill
Telegraph Hill
North Beach
Chinatown
Financial District
Civic Center
Mission Bay
Potrero Hill
Bernal Heights
Glen Park
Portola
Excelsior
Outer Mission
Crocker Amazon
Visitacion Valley
Sunnydale
Hunters Point
Candlestick Park
Candlestick Point
Bayview
Islais Creek
Mission Bay

Water Resources

IS IS IS Intermittent stream Intermittent stream Intermittent stream Lined canal Lined canal IS IS Intermittent stream IS IS IS IS Intermittent stream

Earthquake shaking along entire length of Oakland Segment

Geology

Potentially difficult excavation; trench slope stability in alluvium; slope stability; settlement & liquefaction potential
Lsp
Caloveras Fault
Trench slope stability; settlement and liquefaction potential in alluvium
Gravel pits
Trench slope stability
Trench slope stability; settlement and liquefaction potential in alluvium

Soils

EH/ST; LF; SS
EH/ST; LF; SS
Saline soils
Low fertility
EH/ST; LF; SS
Low to moderate fertility

Vegetative Communities

U/I Dis U/I Disturbed Foothill woodland Nng U/I Fhw Nng Dis Urban / industrial Dis Urban / industrial U/I Agr Agr U/I Agr Dis Rw Dis Rw Nng Riparian woodland

Potential Threatened & Endangered Species Habitats

Land Use

2 23-45 Res Cull Canyon Regional Rec. Area 7 Other 0–5 Agricultural Rowell Ranch Rodeo Park Residential ≥15 Residential ≥65 Ind ≥25 Residential 3 Open 2 Agricultural Open Sycamore Grove Park 1 Open Shadow Cliffs Regional Rec. Area

Land Ownership

Urban street County road Urb str other other Urban street other RR/ROW (SP) other Urban street other RR/ROW (Southern Pacific) Urban street other

unnamed creek MP 20 Cull Creek Crow Creek Interstate 580 MP 15 unnamed creek unnamed creek Interstate 580 Interstate 680 San Ramon Creek MP 10 Chabot Canal Interstate 580 Hewlett Canal Tassajara Creek Arroyo Mocho unnamed creek MP 5 unnamed creek Arroyo Valley unnamed creek MP 0

Mojave Pipeline Company

Proposed Northward Expansion

Oakland Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline at segment milepost

Palo Alto Segment (see Map 28)

Map Area

Map 33 of 43

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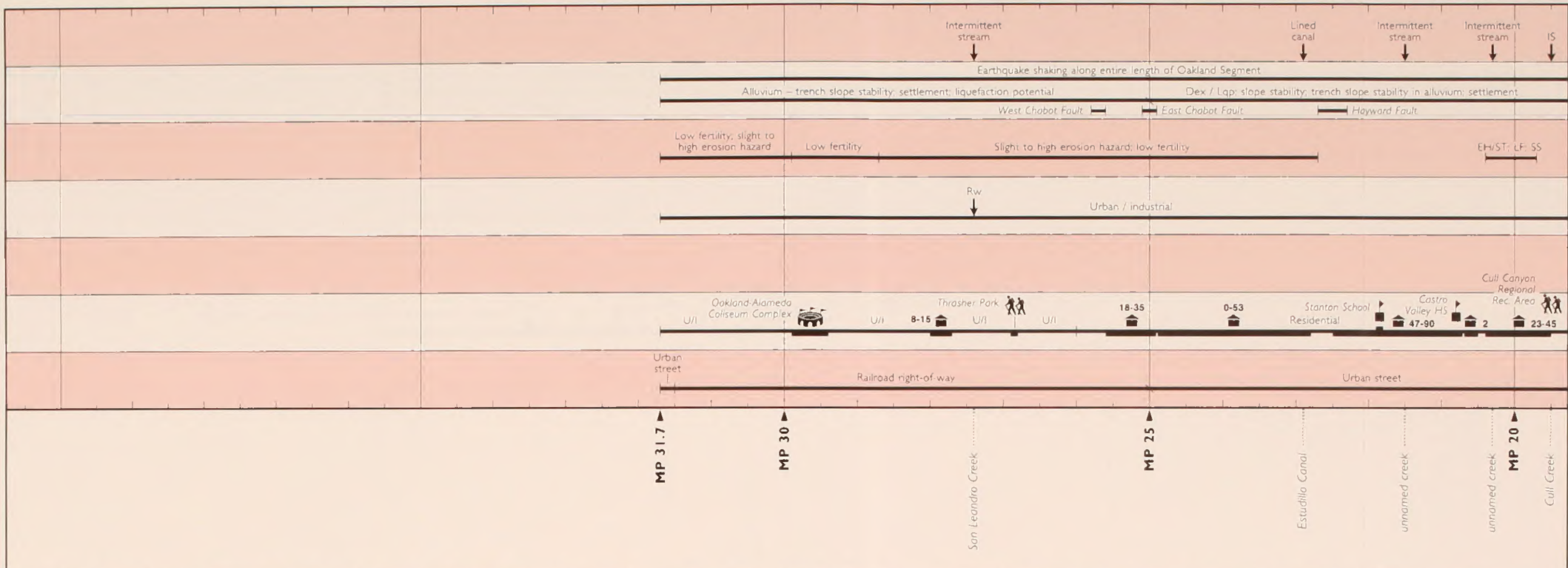

Mojave Pipeline Company

Proposed Northward Expansion

Oakland Segment

Legend

- Proposed pipeline (core)
- Alternatives (*customer group* 1 *or* 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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Buried aqueduct

Intermittent stream IS IS

Earthquake shaking along entire length of Fremont Segment
Trench slope stability; settlement; liquefaction potential

Hayward Fault Zone

Saline soils

Urban / industrial | Disturbed | Nng | Dis | Urban / industrial | Dis | U/I | Dis | U/I

Alameda Creek Quarries Regional Park | ≥245 Residential | Norris School | Open | Civic Center Park | Open | Sportsfield Park | Industrial | Res | Industrial

Res

Railroad right-of-way (Southern Pacific) | Urban street

MP 15.6 | MP 15 | Interstate 880 | Hetch-Hetchy Aqueduct | MP 10 | Interstate 880 | MP 5 | Toroges Creek | unnamed creek | unnamed creek | MP 0

Water Resources

Geology

Soils

Vegetative Communities

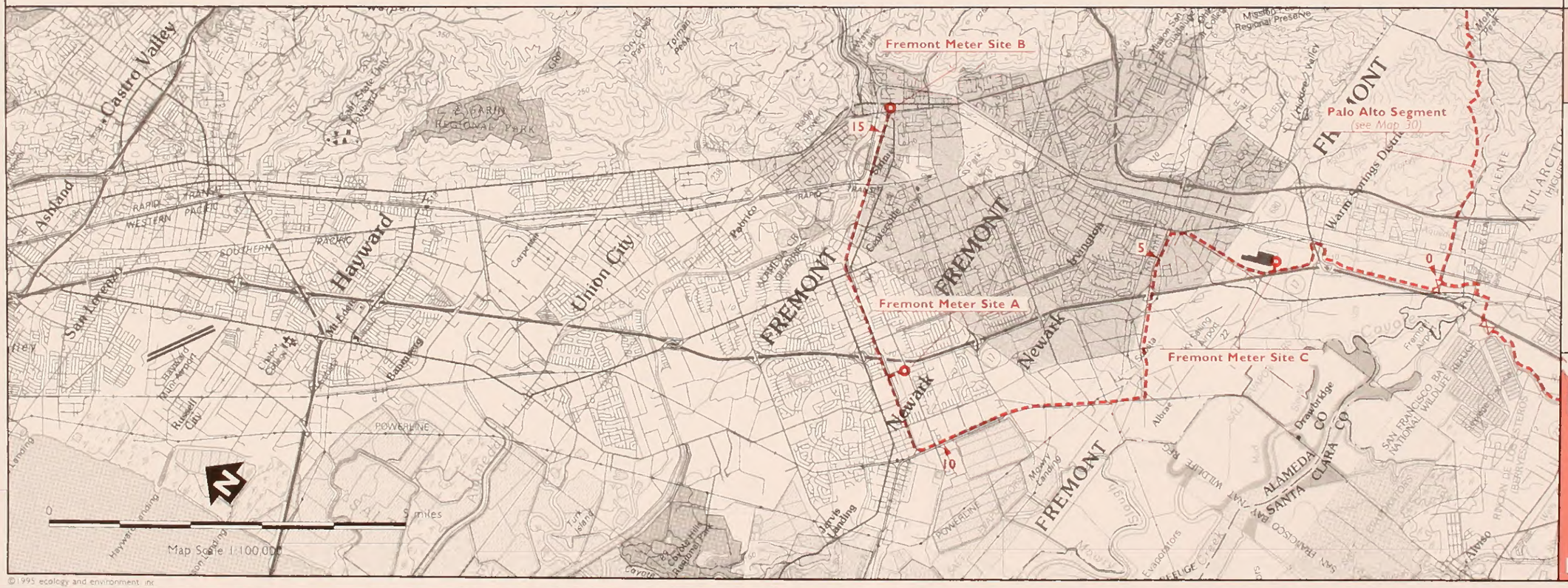
Potential Threatened & Endangered Species Habitats

Land Use

Land Ownership

Mojave Pipeline Company

Proposed Northward Expansion



Fremont Segment

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 35 of 43

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PIPELINE LOOP SECTIONS

Water Resources

Geology — Alluvium – trench slope stability; Potentially difficult excavation; Alluvium – trench slope stability

Soils — High erosion hazard, low fertility, saline soils; high wind erosion hazard; steep slopes; very shallow to shallow soils

Vegetative Communities — Mojave creosote bush scrub

Potential Threatened & Endangered Species Habitats — Desert tortoise

Land Use — Agricultural; 1

Land Ownership — Mojave Pipeline Company; BLM; BLM

MP 15.5 — Proposed Amboy Compressor Station

MP 15

MP 10 — U.S. Highway 66

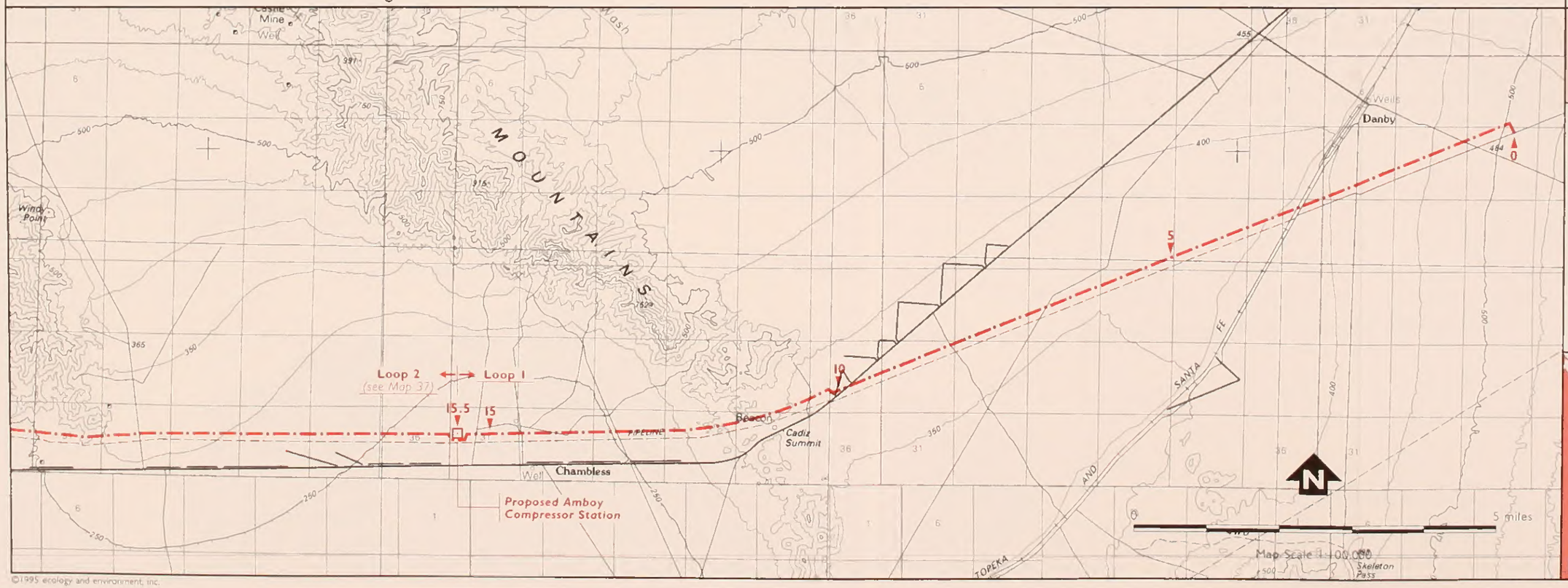
MP 5 — AT&SF Railroad

Danby Road

MP 0

Mojave Pipeline Company

Proposed Northward Expansion



Loop 1

Mojave Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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Water Resources	
Geology	Potentially difficult excavation; slope stability in areas of moderate to steep slopes; trench slope stability in alluvium
Soils	High erosion hazard; low inherent fertility; saline soils; high wind erosion hazard; steep slopes; very shallow to shallow soils
Vegetative Communities	Mojave creosote bush scrub; Mojave wash scrub; Mojave creosote bush scrub
Potential Threatened & Endangered Species Habitats	Desert tortoise; Desert tortoise
Land Use	Agricultural; 1
Land Ownership	Mojave Pipeline; BLM; BLM; BLM; BLM; BLM; BLM; Bureau of Land Management; BLM

U.S. Highway 66 and AT&SF Railroad

MP 20 · MP 15 · MP 10 · MP 5 · MP 0

Mojave Pipeline Company

Proposed Northward Expansion

Loop 2
Mojave Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

R-10-E · R-11-E · R-12-E · R-13-E

T 6 N · T 5 N

20 · 15 · 10 · 5 · 0

Proposed Amboy Compressor Site

Bagdad · Sec. 30 · Stockpile Area · Landing Strip · Amboy · Amboy Crater · Wells · Saltus · Windy Point · Bristol Lake · LAVA · GROUND COMBAT CENTER · LAKE

ATCHISON TOPEKA AND SANTA FE · PECOS · 66

0 5 miles

Map Scale 1:100,000

Map Area

Map 37 of 43

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Water Resources

Geology

Potentially difficult excavation; slope stability in areas of moderate to steep slopes; trench slope stability in alluvium

Ludlow Fault

Soils

High erosion hazard; low fertility; saline soils; high wind erosion hazard; steep slopes; very shallow to shallow soils

Vegetative Communities

Mojave creosote bush scrub

Mws Mcbs Mws

Mws Mcbs

Mojave creosote bush scrub

Potential Threatened & Endangered Species Habitats

Desert tortoise

Desert tortoise

Desert tortoise

Land Use

Agricultural

Land Ownership

Mojave Pipeline Company

BLM BLM BLM BLM BLM

MP 36.7 MP 35 MP 30 MP 25 U.S. Highway 66 MP 20

Mojave Pipeline Company

Proposed Northward Expansion

Loop 2

Mojave Mainline

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

36.7 35 30 25 20

Ragtown Old Pete Mine Stedman Bagdad Chase Mine Klondike Siberia Ridge BUTLER

NTYNINE PALMS

0 5 miles

Map Scale 1:100,000

Map Area

Map 38 of 43

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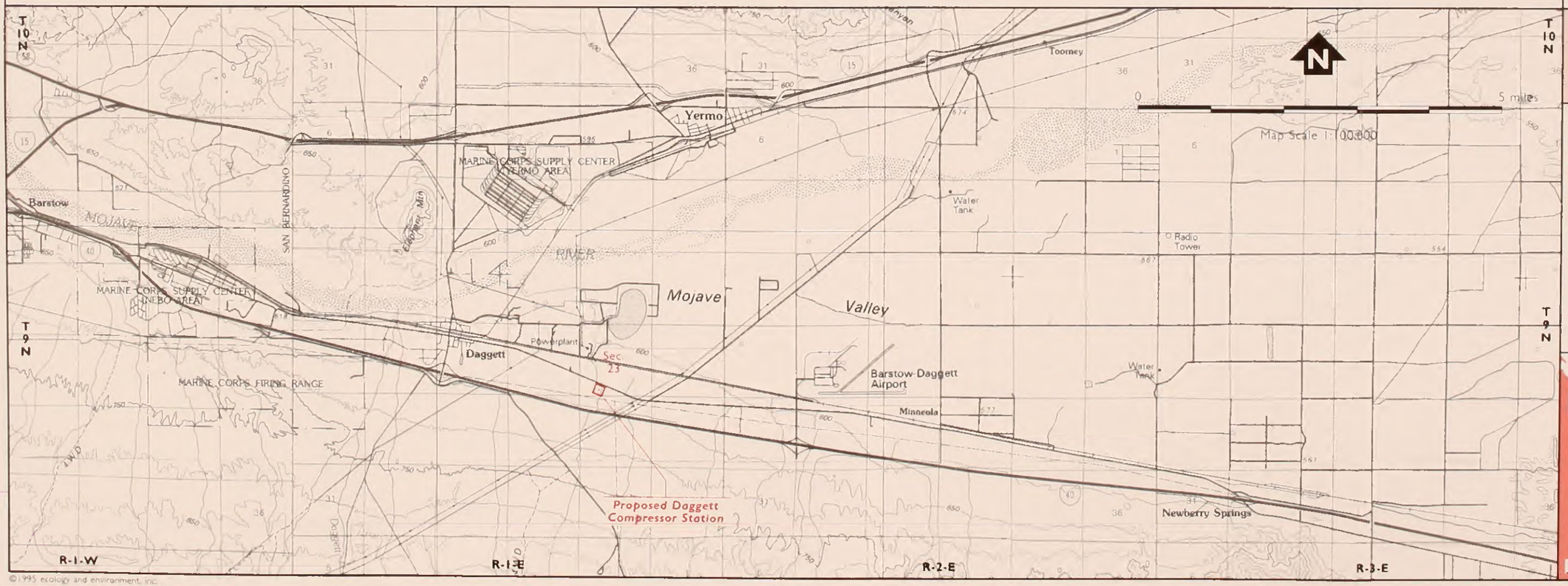
					Water Resources
		Earthquake shaking at proposed Daggett Compressor Station			Geology
					Soils
		Mojave desert scrub			Vegetative Communities
		Desert tortoise			Potential Threatened & Endangered Species Habitats
		Other			Land Use
		Other			Land Ownership

Mojave Pipeline Company

Proposed Northward Expansion



Proposed Daggett Compressor Station

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map 39 of 43

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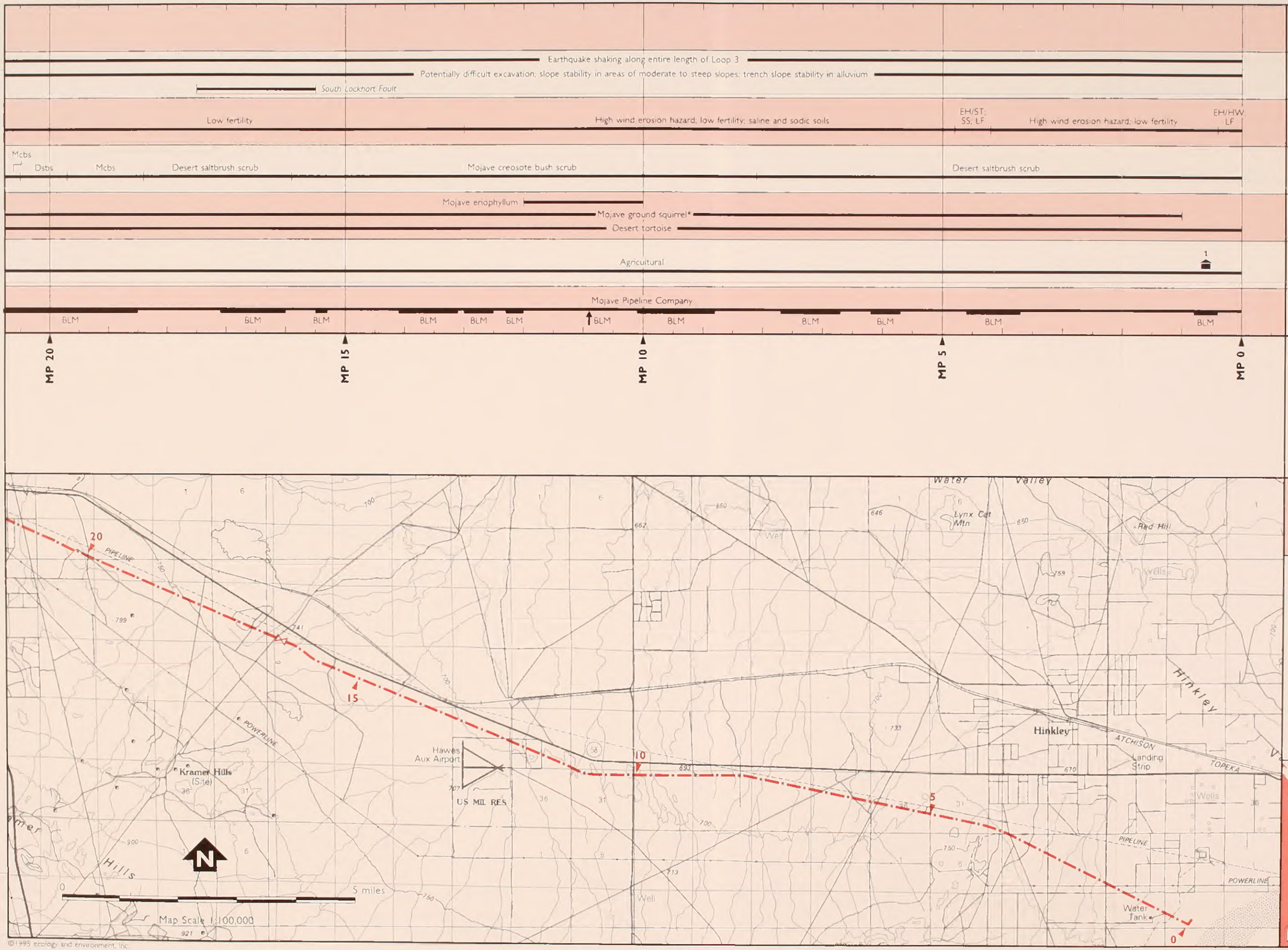

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Water Resources

Geology — Earthquake shaking along entire length of Loop 3; Potentially difficult excavation, slope stability in areas of moderate to steep slopes; trench slope stability in alluvium; unnamed faults; *South Lockhart Fault traces*

Soils — Low fertility

Vegetative Communities — Dsbs; Mcbs; Dsbs; Mcbs; Desert saltbrush scrub; Mcbs

Potential Threatened & Endangered Species Habitats — Desert tortoise; Mojave ground squirrel

Land Use — Agricultural

Land Ownership — Mojave Pipeline Company; BLM; BLM; BLM; BLM

U.S. Hwy. 395 — MP 22.9 — MP 20 — MP 15

Mojave Pipeline Company

Proposed Northward Expansion

Loop 3
Common Line

Legend
- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Boron; Kramer Junction; Substation; Landing Strip; 22.9; 20; 15; PIPELINE; POWERLINE; MILITARY RESERVATION BOUNDARY; ATCHISON TOPEKA AND SANTA FE; U.S GOVT RR; AT&SF; KERN CO; SAN BERNARDINO CO; Water Tank; WT; Lockhart Ridge; Rocket Propulsion Laboratory; Mine adits; Kramer Hills Mine site; Kramer Hills; Observation Tower; Radio Tower; Well; G H T T E S T C E N T E R; 0; 5 miles; Map Scale 1:100,000

Map Area

Map 41 of 43

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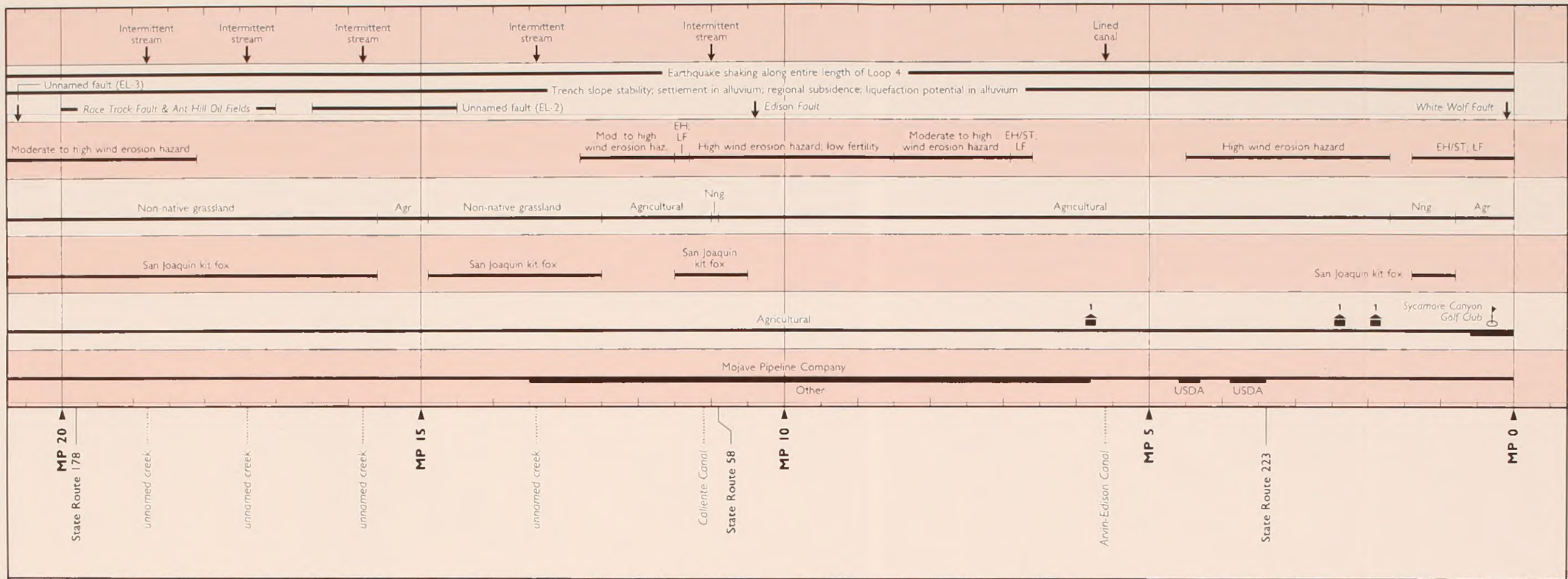
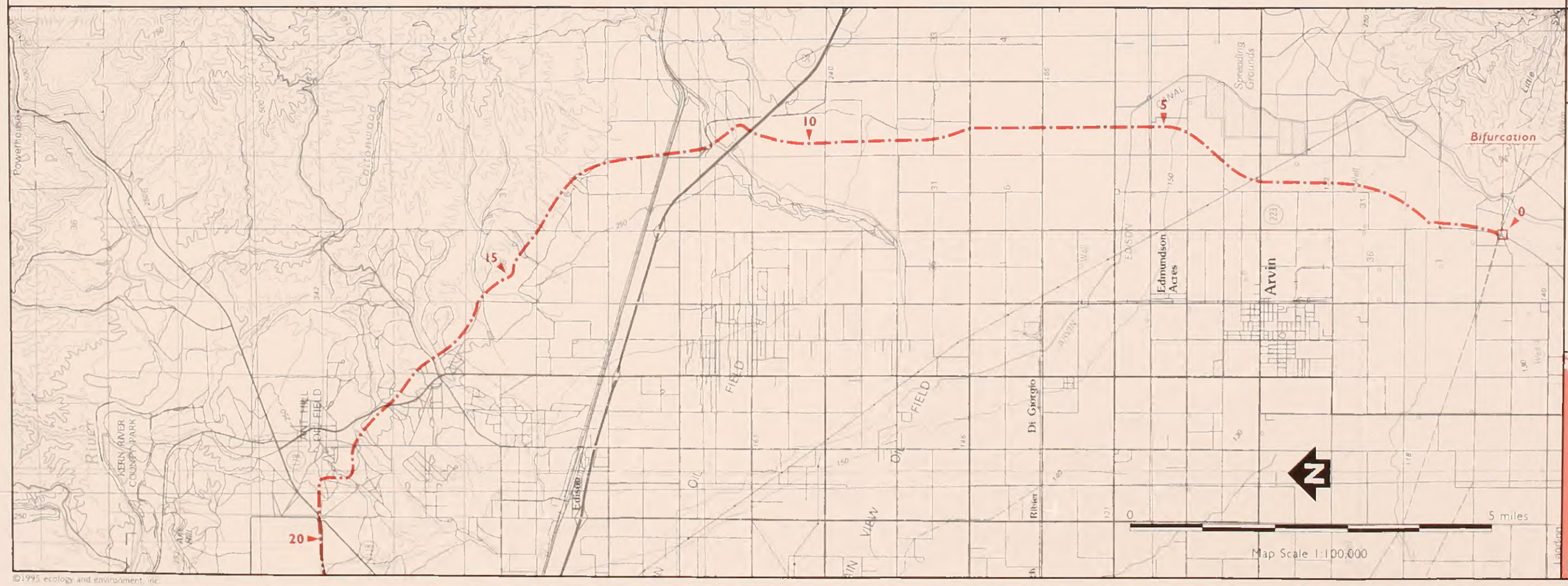


Mojave Pipeline Company

Proposed Northward Expansion



Loop 4

East Side Lateral

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost
- Alternate route milepost

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Water Resources	
Geology	Earthquake shaking along entire length of Loop 4 Potentially difficult excavation; slope stability in areas of moderate to steep slopes; trench slope stability in alluvium unnamed fault (EL-3) Race Track and Ant Hill oil fields
Soils	SS, LF, EH Moderate to high wind erosion hazard
Vegetative Communities	Non-native grassland Disturbed Non-native grassland
Potential Threatened & Endangered Species Habitats	Bakersfield cactus San Joaquin kit fox
Land Use	Agricultural
Land Ownership	Mojave Pipeline Company

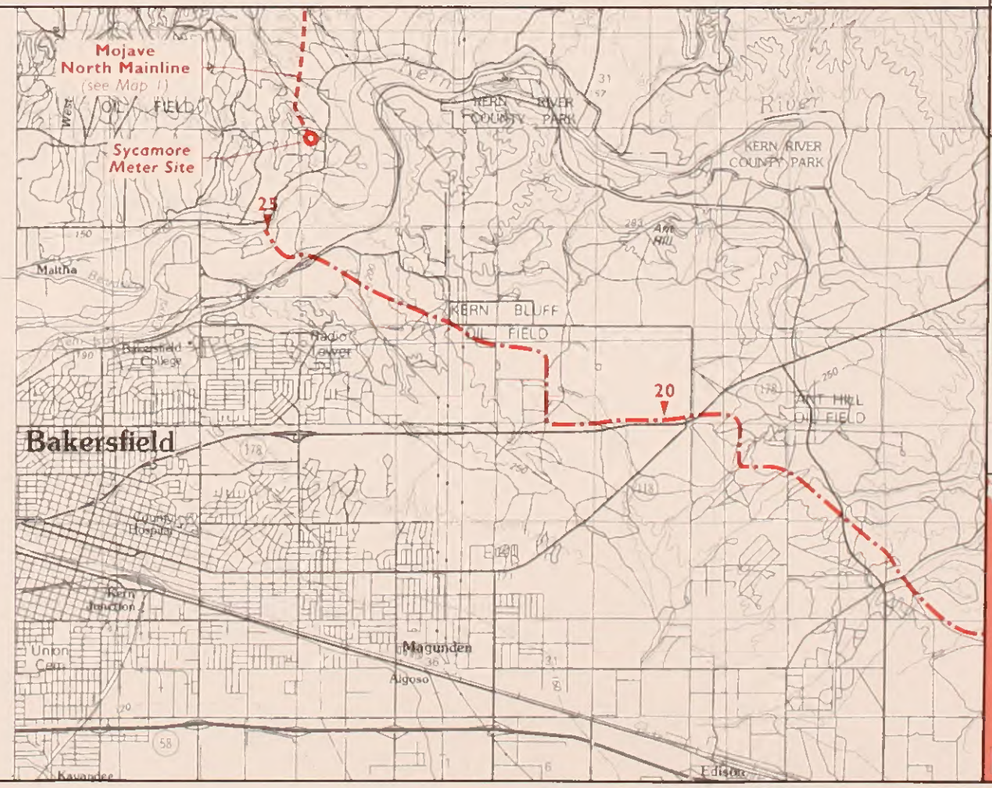
MP 25

MP 20

State Route 178

Mojave Pipeline Company

Proposed Northward Expansion



Loop 4

East Side Lateral

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

0 5 miles

Map Scale 1:100,000

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BAY AREA ALTERNATIVES

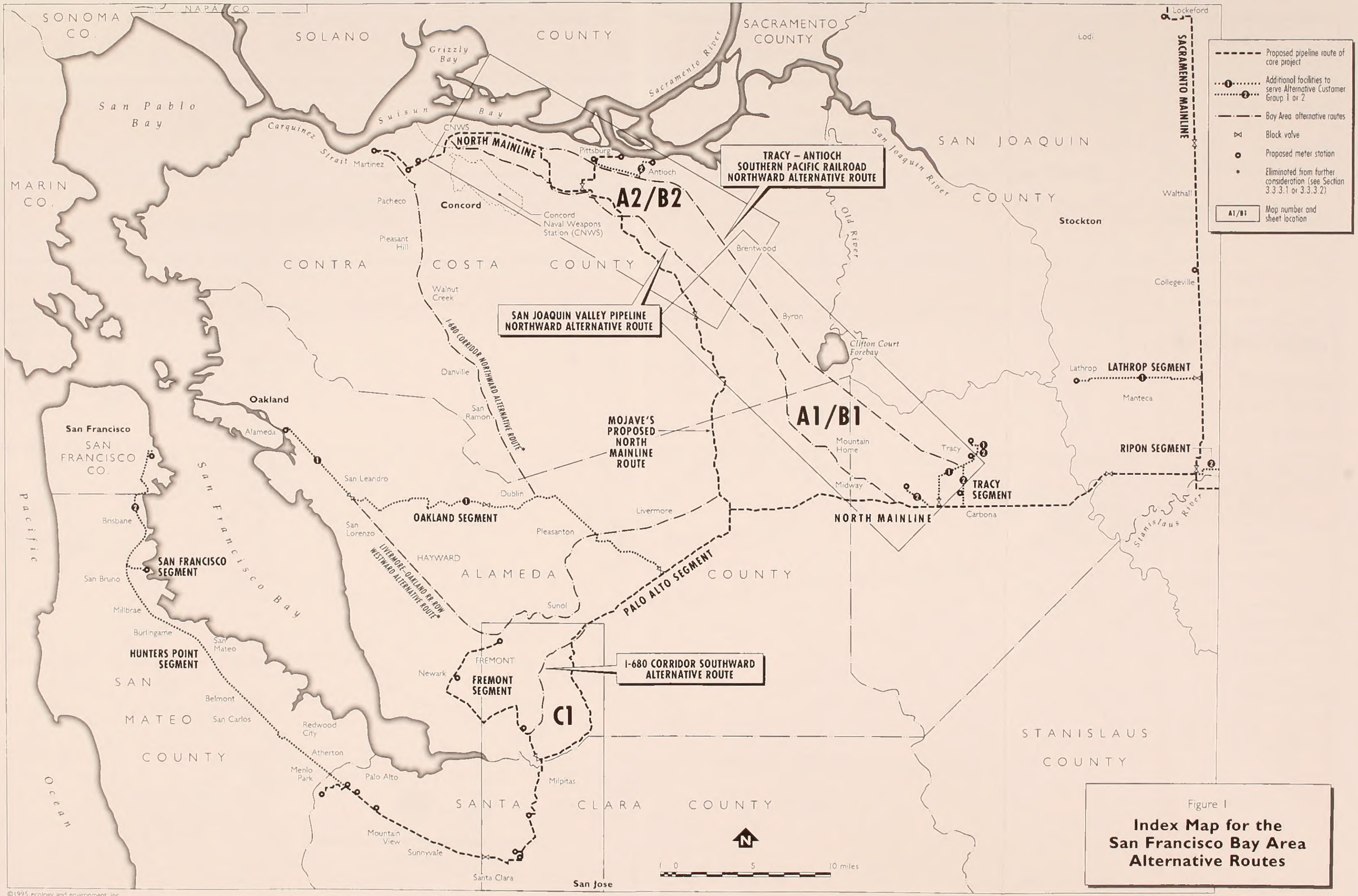

Figure 1

Index Map for the San Francisco Bay Area Alternative Routes

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OJ3140.c (c50) 01/13/95

Water Resources

Geology

Soils

Vegetative Communities

Potential Threatened & Endangered Species Habitats

Land Use

Land Ownership

Mojave Pipeline Company

Proposed Northward Expansion

San Joaquin Valley Pipeline Alternative

Tracy to Martinez

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

Map Area

Map A1

Map Scale 1:400,000

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Water Resources

Buried aqueduct; Lined canal; Intermittent stream; Intermittent stream; IS; IS; IS; Intermittent stream; Intermittent stream; IS

Geology

Alluvium – Settlement / liquefaction potential; Potentially Dex; Lsp / Lqp in alluvium; high to moderate liquefaction potential; Earthquake shaking along entire length of SJVPC route; unnamed fault; unnamed fault

Soils

Steep slopes; slight to high erosion hazard; low to moderate fertility; Slope >15%; Slope <15%

Vegetative Communities

Ull; Riparian; Non-native grassland; Riparian; Urban; Agr; Riparian; Non-native grassland; Rw; Agr; Agr; Nng; Agr

Potential Threatened & Endangered Species Habitats

* confirmed at this location

San Joaquin kit fox*; Large-flowered fiddleneck; Santa Cruz tarplant; California red-legged frog; California tiger salamander*; San Joaquin saltbush; Stinkbells; Showy madia; Cal. tiger salamander

Land Use

≥20; ≥10; Delta View Golf Course; Buchanon Rd. Bypass; Open; 1; Contra Loma Regional Park; 85; Open; Black Diamond Mine Regional Preserve; Res; 3; Agr; 2; Open; 2; Fhw; Agr; Open; Agr

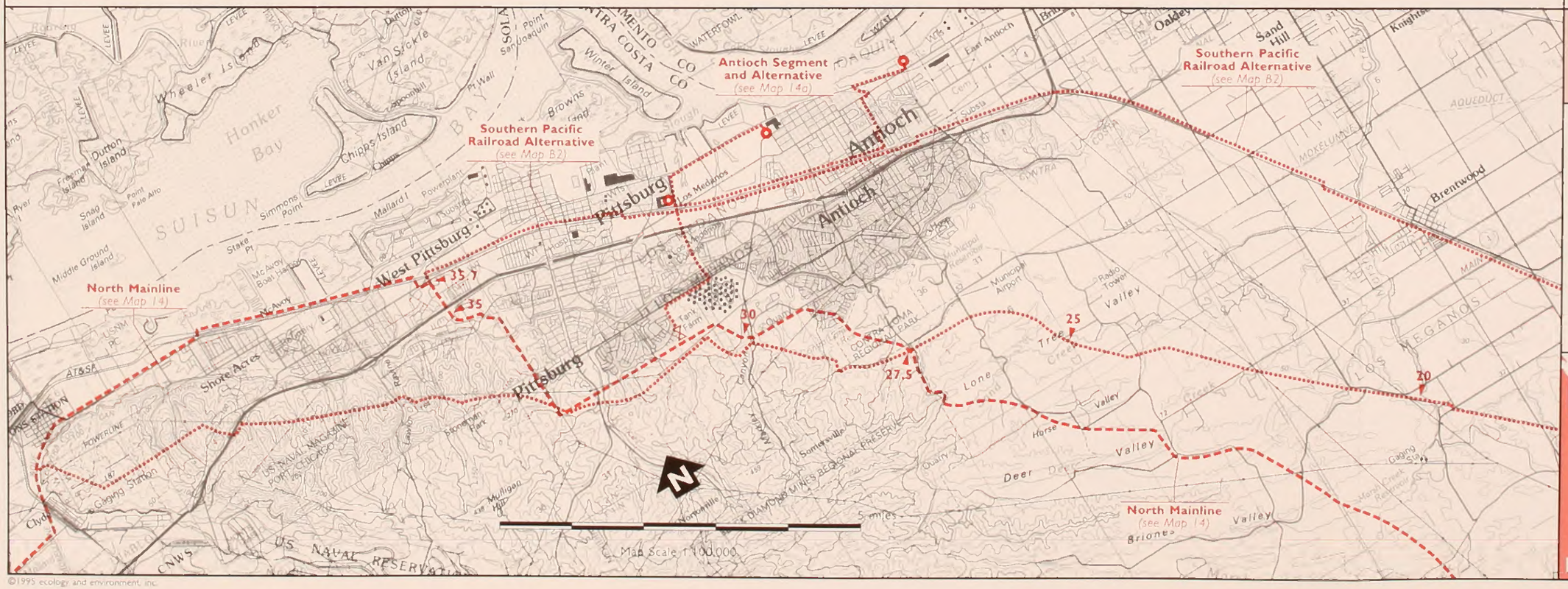
Land Ownership

Urban street; Other; County road; Other; Fed (BOR); Other; Bureau of Reclamation (BOR)

MP 35.7; State Route 4; Makelumne Aqueduct; MP 35; Contra Costa Canal; Kirker Creek; MP 30; unnamed creek; unnamed stream; unnamed stream; unnamed stream; unnamed stream; MP 25; unnamed stream; MP 20

Mojave Pipeline Company

Proposed Northward Expansion


Antioch Segment and Alternative
(see Map 14a)
Southern Pacific Railroad Alternative
(see Map B2)
Southern Pacific Railroad Alternative
(see Map B2)
North Mainline
(see Map 14)
North Mainline
(see Map 14)
Pittsburg
West Pittsburg
Antioch
Brentwood
Oakley
Sand Hill
Hanker Bay
Wheeler Island
Chipps Island
Winter Island
Browns Island
Frank's Tract
Dutton Island
Van Sickle Island
Snag Island
Middle Ground Island
Point Pale Arco
Point San Joaquin
Simmons Point
Stake Pt
Mallard I
Pt Wall
Shore Acres
McAvoy Boat Harbor
USNM
PC
AT&SF
POWERLINE
Clyde
Concord Naval Weapons Station
US NAVAL MAGAZINE PORT CHICAGO
US NAVAL RESERVATION
CNWS
Mt. Diablo
Mulligan Hill
Somersville
DIAMOND M MINES REGIONAL PRESERVE
Nortonville
Deer Valley
Horse Valley
Lone Tree Valley
Black Diamond Mines Regional Preserve
Contra Loma Regional Park
Los Medanos
Municipal Reservoir
Municipal Airport
Radio Tower
Gaging Station
Gaging Station
Mokelumne Aqueduct
Contra Costa Canal
Delta-Mendota Canal
Tank Farm
Tank Farm
Subst
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Mun

Water Resources

Lined canal; Intermittent stream / canal (in ROW); IS; Lined canal (in ROW); IS; Intermittent stream; Lined canal; Canal (in ROW); Canals; Canal; Lined canal; Canal (in ROW); Canal; Canal; Lined canal

Geology

Earthquake shaking along entire length of SPRR alternative route

Soils

Vegetative Communities

Urban; Agr; Nng; Agricultural; Rip; Agr; Urb; Agr; Rip; Agr; Nng; Fwm; Nng; Agr; Fwm; Agricultural; Nng; Agricultural; Agr; Urb; Urban

Potential Threatened & Endangered Species Habitats

Recurved larkspur; Valley sink scrub; Caper-fruited tropidocarpum; Contra Costa goldfields; Alkaline meadow; California tiger salamander; Caper-fruited tropidocarpum; Northern clay pan vernal pool; Caper-fruited tropidocarpum

Land Use

Com; Res; Other; Other; Agr; Agricultural; Ind/ Com; Agr; 19; Agricultural; Res; Other; Agricultural; Other; Agricultural; Ind/Com; Agr; Ind/Com

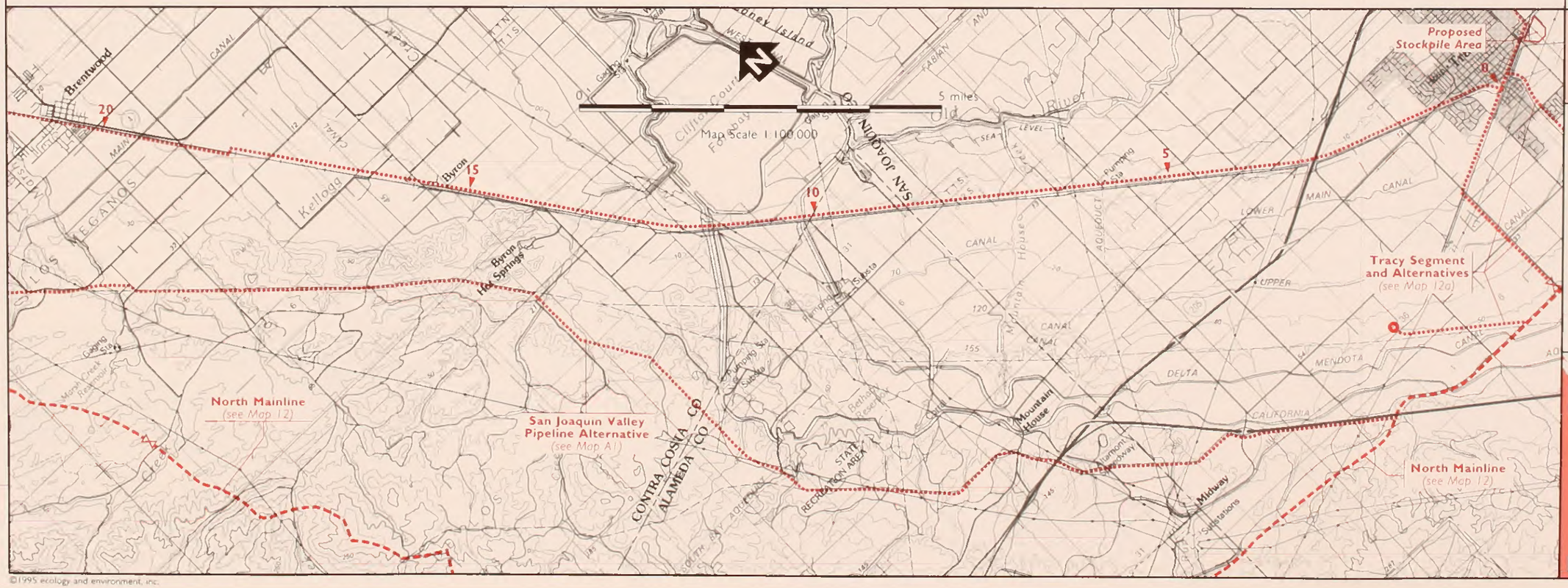
Land Ownership

Railroad right-of-way *(Southern Pacific)*

MP 20 *Main Canal* *unnamed creek / canal* **MP 15** *unnamed creek* *irrigation canal* *unnamed creek draining to Clifton Court Forebay* *Brushy Creek* *California Aqueduct* *unnamed canal in ROW* **MP 10** *unnamed canal* *Delta Mendota Canal* *unnamed canal* *Patterson Aqueduct* *unnamed canal in ROW* **MP 5** *unnamed canal* *unnamed canal* *Lower Main Canal* **MP 0**

Mojave Pipeline Company

Proposed Northward Expansion



Southern Pacific Railroad Alternative

Tracy to Antioch

Legend

- Proposed pipeline (core)
- Alternatives (customer group 1 or 2)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost

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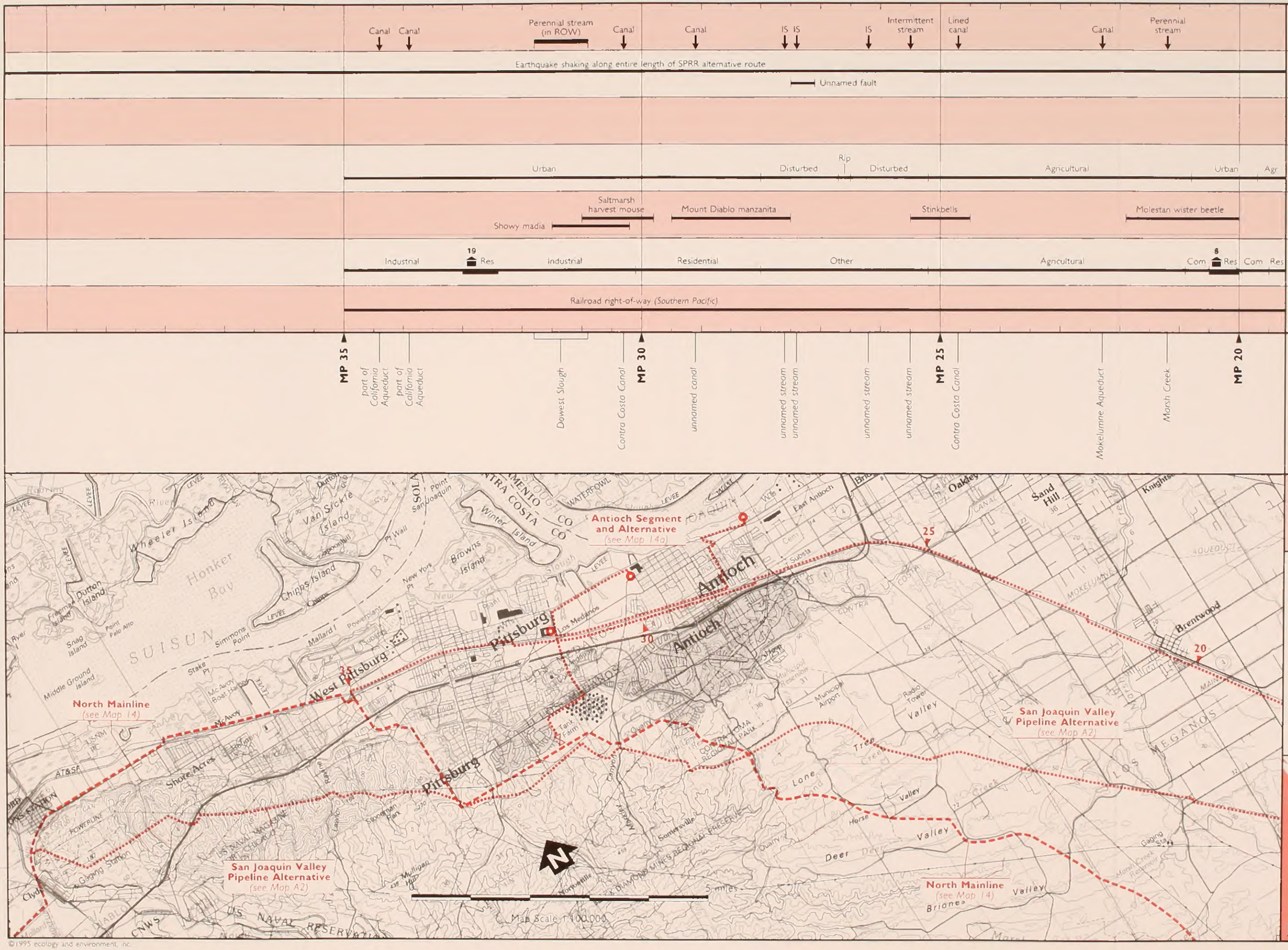
Map Vol – SPRR.1 01/24/95



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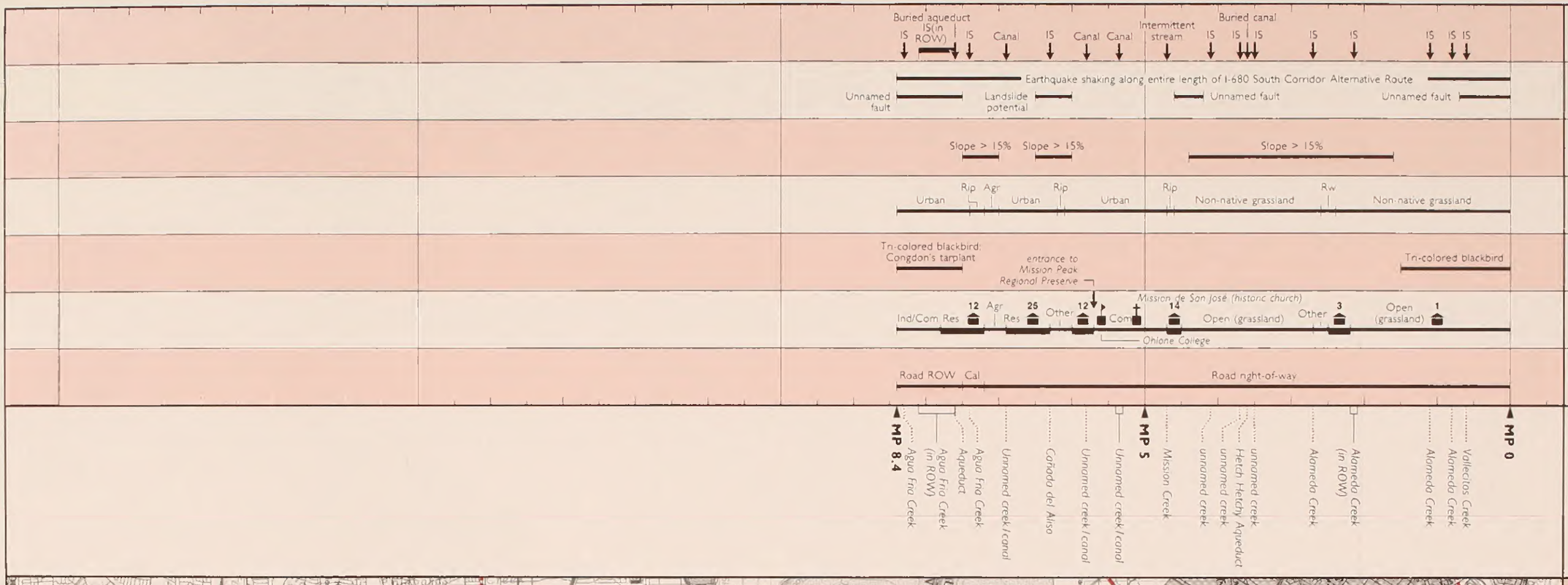
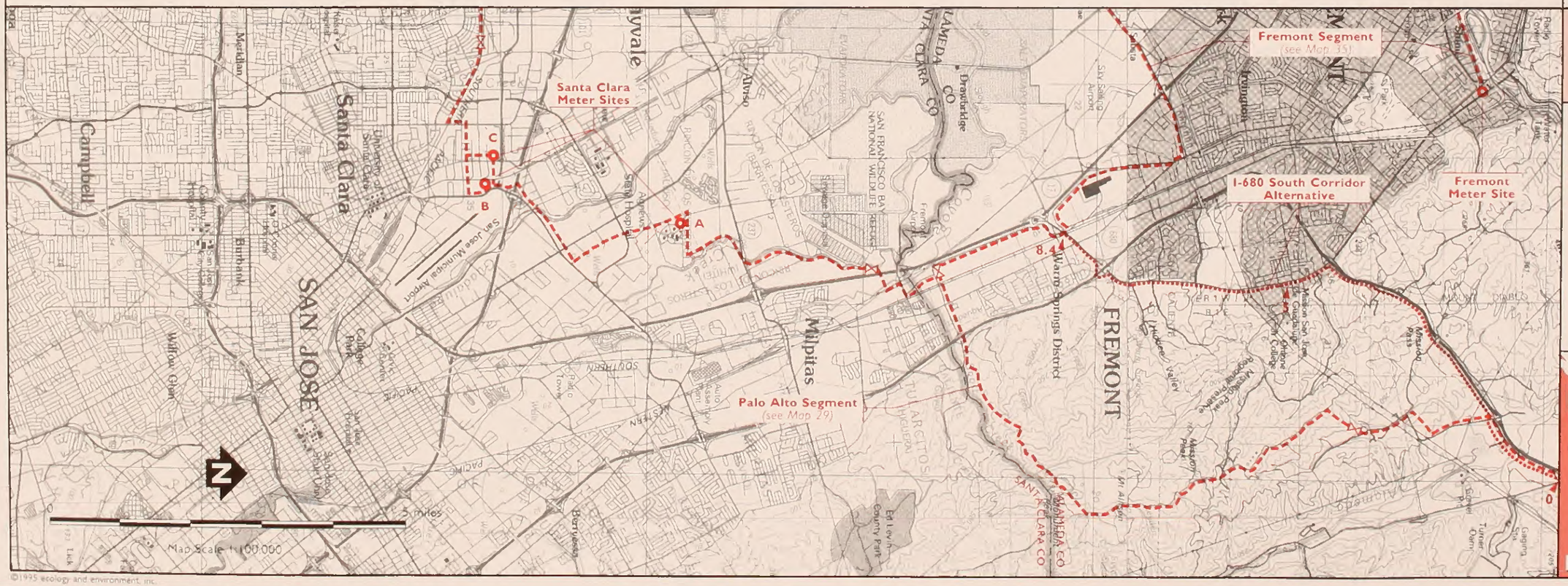


Mojave Pipeline Company

Proposed Northward Expansion

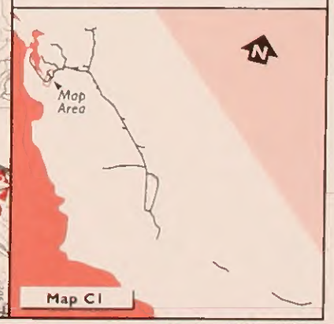


I-680 South Corridor Alternative

Pleasanton to Fremont

Legend

- Proposed pipeline (core)
- Alternatives (*customer group* **1** or **2**)
- Proposed pipeline loop
- Proposed compressor station
- Existing compressor station
- Proposed block valve
- Proposed meter site
- Mainline or segment milepost



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